
3 AFFECTED ENVIRONMENT

This chapter describes the environment likely to be affected by the project. The purpose of this chapter is to give the reader background with which to evaluate the impacts of the project that are described in Chapter 4, Environmental Consequences.

3.1 SOCIAL, ECONOMIC AND LAND USE

A Community Impact Assessment (CIA) Report was completed for this project in November 2001. This report describes the socioeconomic environment and evaluates any socioeconomic impact of this project. Copies of this report are available for review at the Department of Transportation, District 3 Sacramento office, 2389 Gateway Oaks Dr., Sacramento, CA.

3.1.1 Study Area

The Study Area for the Community Impact Assessment includes the City of Lincoln and the Sheridan Community planning area in addition to the South Placer and Auburn-Foothills regions of Placer County. The City of Lincoln consists of an area of approximately 7,891 ha (19,500 ac). The Sheridan Community planning area embodies an estimated 777 ha (1,920 ac) in Placer County's northwestern region. General information about the South Placer and Auburn-Foothills regions of Placer County is included to provide a greater understanding of the relative significance of the Lincoln Bypass to the west Placer County community. For purposes of this document, the South Placer and Auburn-Foothills regions of Placer County will be referred to as western Placer County.

3.1.2 Major Land Uses

The Placer County General Plan (1994) provides an overall framework of the County's land use plan (Figure 3-1), whereas, the City of Lincoln General Plan (1988) and Sheridan General Plan (1976) supplement the Study Area. Figure 3-2 illustrates the major land uses for the City of Lincoln as adopted under the 1988 General Plan. Sheridan's land use designations adopted under the 1976 General Plan are depicted on Figure 3-3. Major land uses identified within the Study Area are agriculture, residential, industrial, commercial and resource protection, greenbelt, open space, and recreation.

Figure 3-1 Placer County Land Use Plan

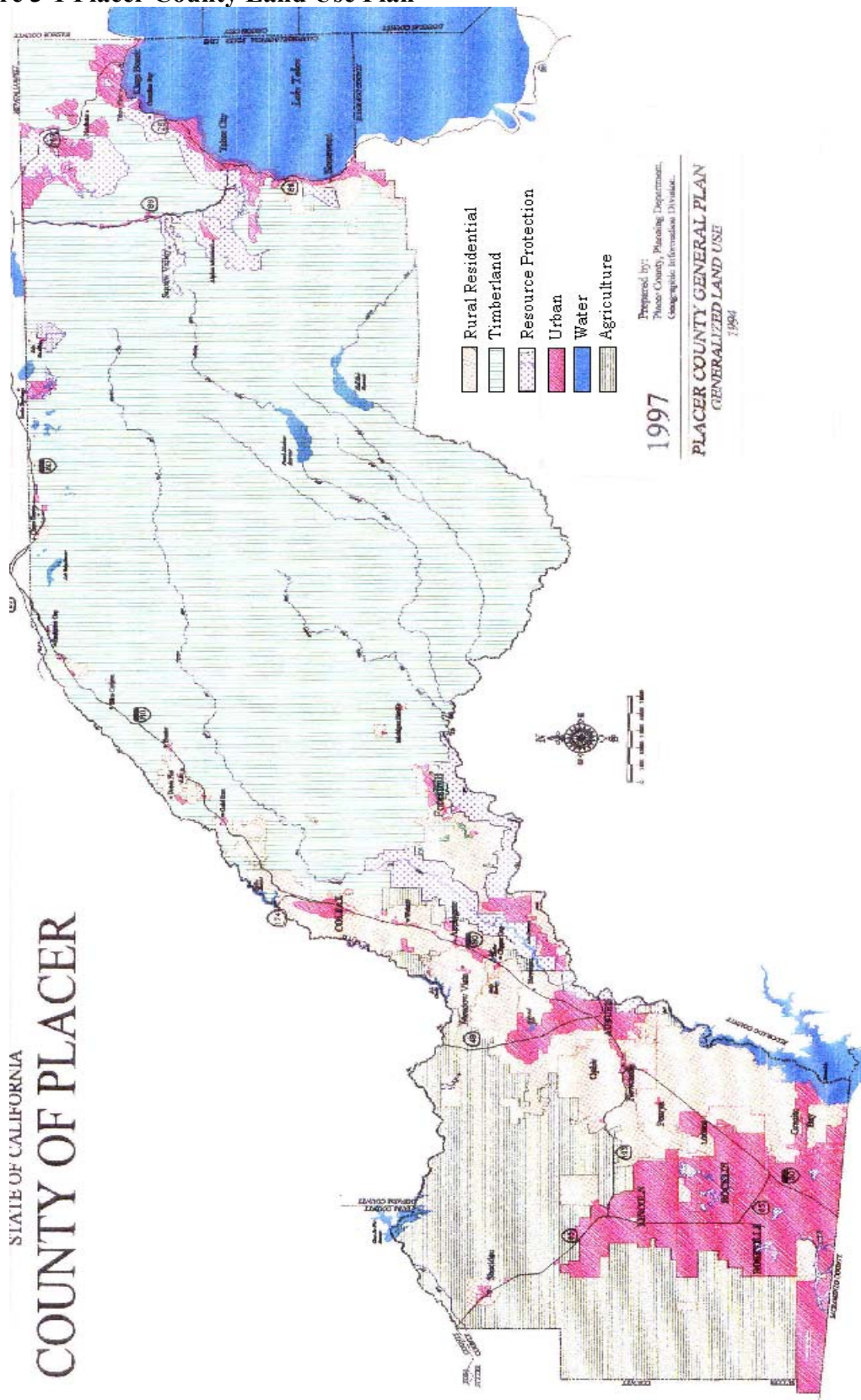
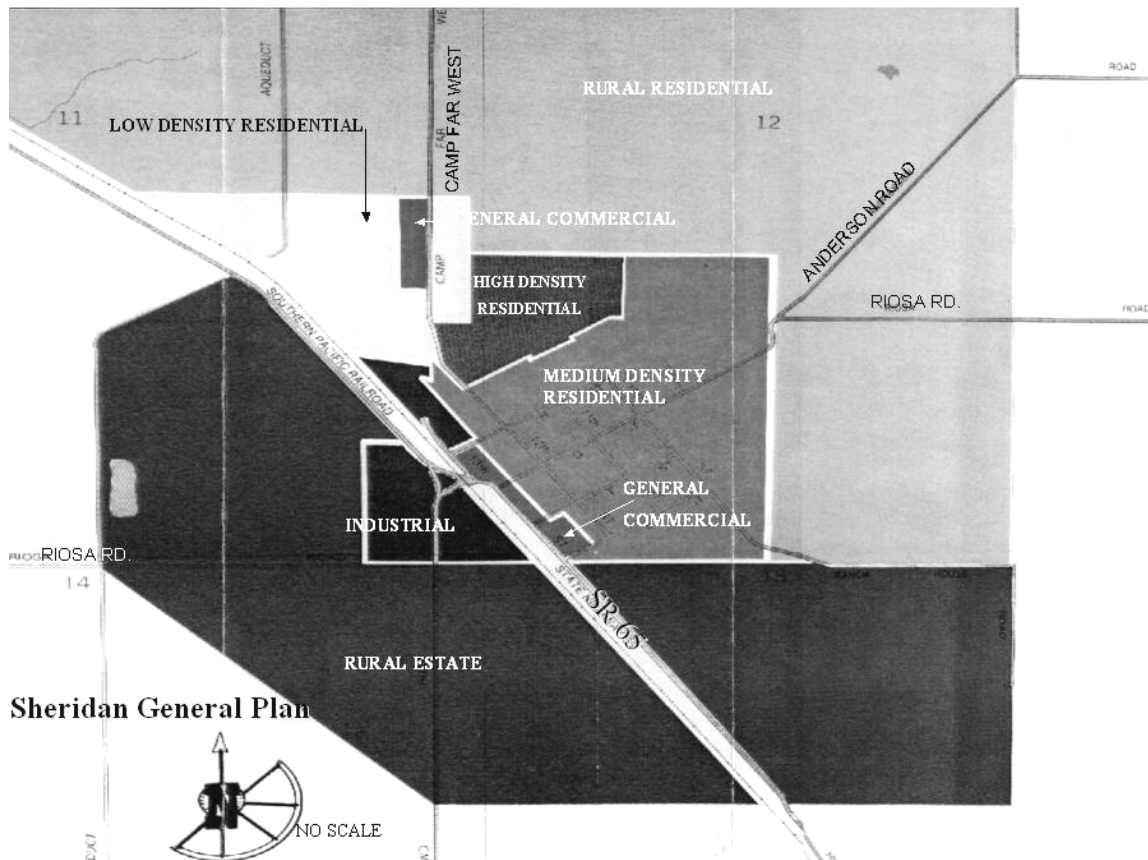


Figure 3-2 Lincoln General Plan Land Use Map

Figure 3-3 Sheridan Land Use Plan

Agriculture

Compared to other California counties, Placer County ranks in the lower 20% in terms of total farmland acreage; nevertheless, agriculture is an important component in Placer County's economy as substantiated by the \$60.5 million value of production in 2000. Most of the agricultural use in the project area is within Placer County's jurisdiction and outside Lincoln's city limits. In western Placer County, lands designated for agricultural use represent approximately 42.1 percent of the total acreage in the study area.

An estimated 30% of Lincoln's planning area continues to be used for agriculture, although zoned as urban reserve. Approximately 1813 ha (4,480 ac) lie in the southwestern region while an estimated 518 ha (1,280 ac) are located in the northwestern perimeter. The majority of the agricultural lands are used for cattle grazing; however, both irrigated and dry land farming do exist, with rice being the dominant crop.

Unlike the City of Lincoln, the Sheridan planning area maintains approximately 84% of its land for agricultural uses, totaling an estimated 653 ha (1,613 ac). Agriculture within the Sheridan area has been highly dependent on the availability of water and the

economy, which has limited much of the area to dry grazing, and irrigated pastures with moderate amounts of rice production.

Agricultural Preserves (Williamson Act Agreements)

Since the draft of this EIS/EIR, Placer County has completed a draft study of western Placer County to assess current agricultural resources and determine how to better protect them from the recent population and housing increase. This draft report was completed in January 2002.

As of 2002, Placer County has 71,000 ha (175,445 ac) of agricultural land (California Department of Conservation, 2003). This breaks down to 3,837 ha (9,481 ac) of prime farmland, 2,231 ha (5,513 ac) of farmland of statewide importance, 8,970 ha (22,166 ac) of unique farmland, 41,617 ha (102,838 ac) of farmland of local importance and 14,345 ha (35,447 ac) of grazing land.

Agricultural uses make up the single largest land category in the western Placer County. This includes 52,290 ha (129,209 ac) of cultivated farmland, idle farmland, pasture and semi-agricultural uses. Lands designated for agricultural use represent approximately 42.1 percent of the total acreage in western Placer County. According to the West Placer County Agricultural Study (January 2002), there are approximately 42,244 ac of land participating in the Williamson Act.

The Placer County Agricultural and Open Space Preserve Program was established in accordance with the Williamson Act to protect agricultural lands for the continued production of agricultural commodities, and to protect certain other lands devoted to open space uses. The Administrative Rules for Agricultural and Open Space Preserves, administered by the County's Planning Director, Agricultural Commissioner and Assessor, implement the provisions of the Williamson Act in Placer County. These rules are not intended to replace the Williamson Act, rather work in conjunction with applicable provisions of the Williamson Act. Please refer to Figure 3-4 for distribution of these lands.

Figure 3-5 shows the distribution of agricultural land in western Placer County. All of the alternatives will affect prime, unique, statewide, and locally important farmlands. Completion of the Farmland Impact Rating (See Chapter 7, Comments and Coordination and Appendix D, Farmland Impact Rating Form) showed that alternatives, A5C1 and AAC2 had point values of 158, and 157. The D1 and D13 point values were 162 and 161. The D13 South and North Modified Alternatives values were both 147.

Figure 3-4 Williamson Act Lands

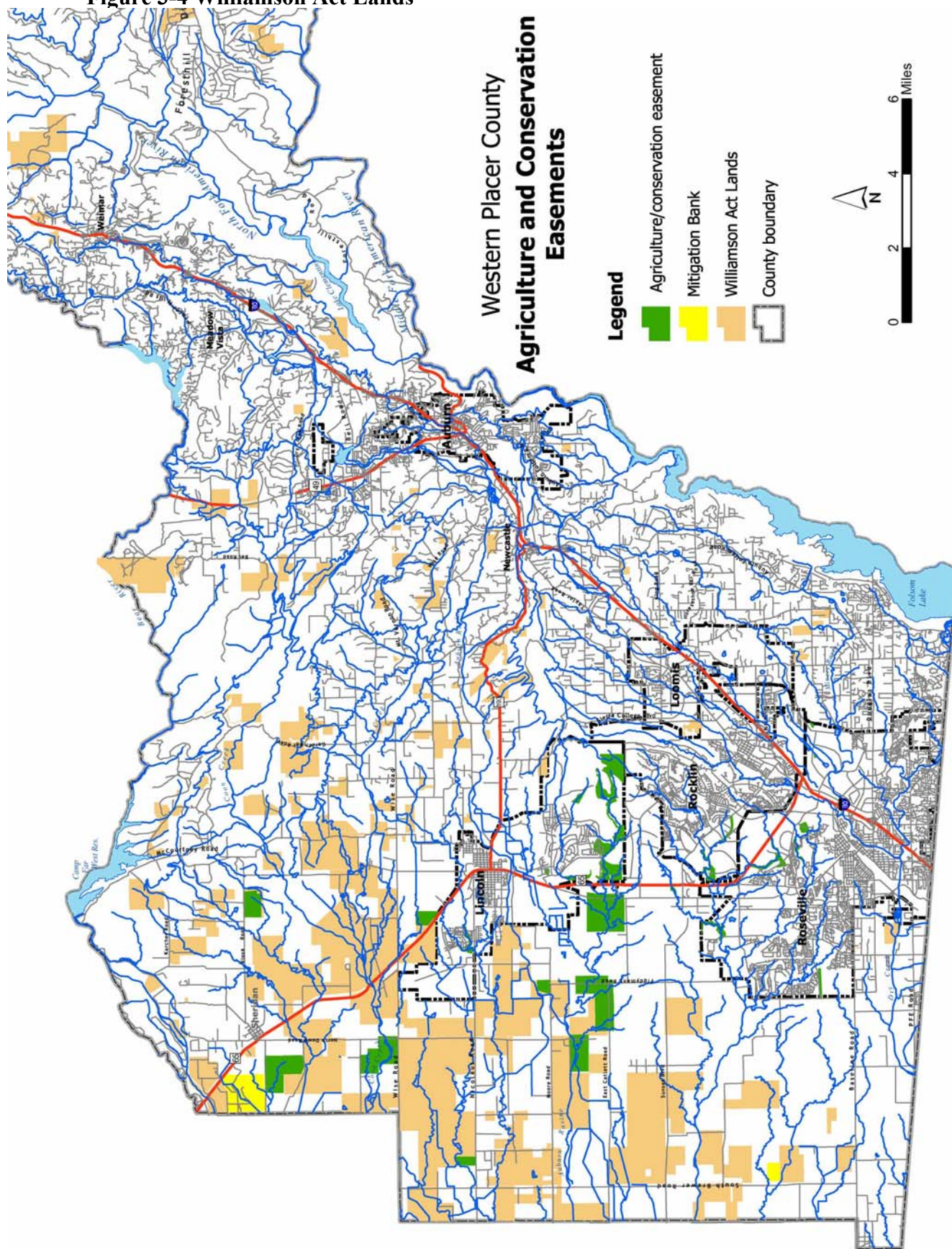
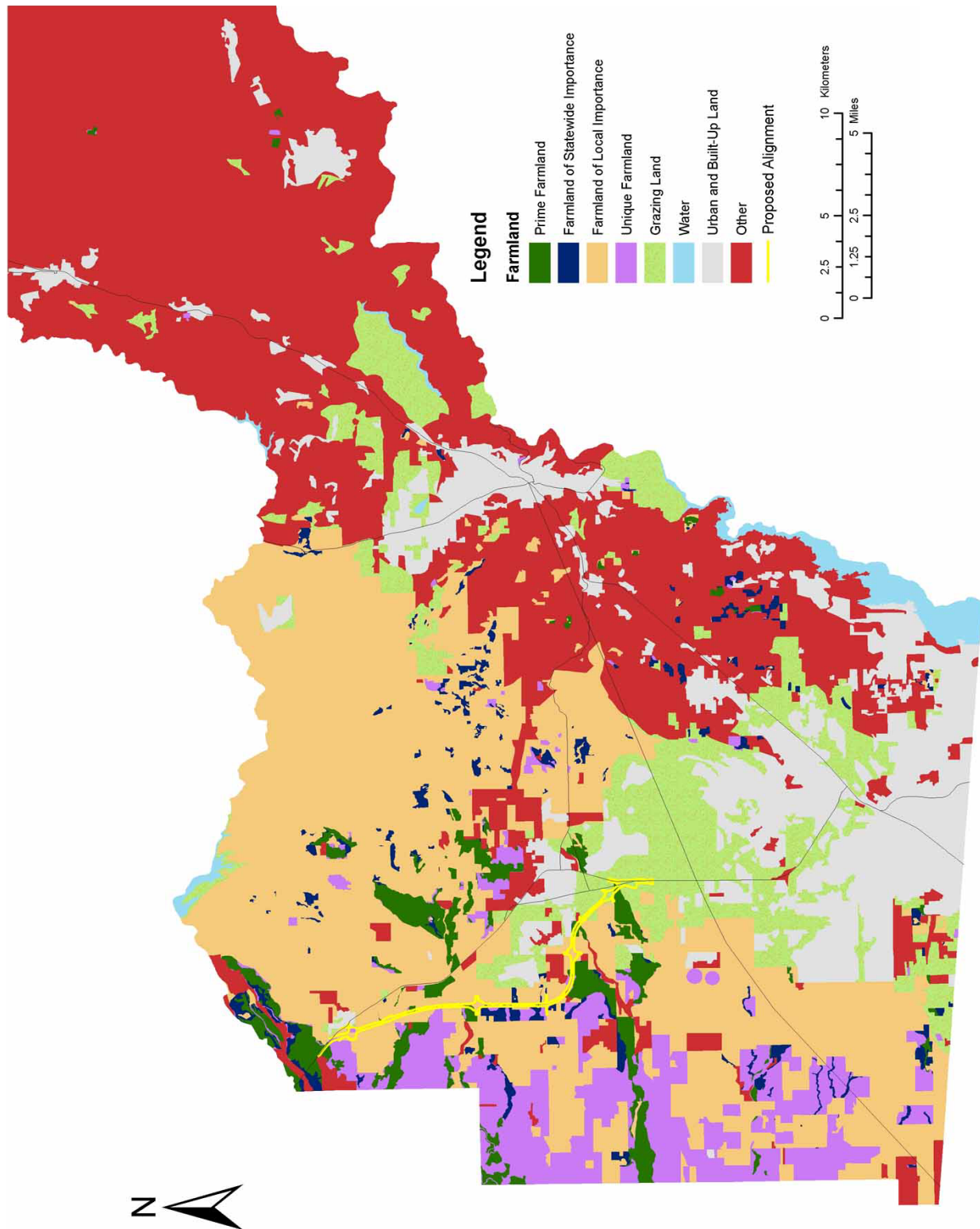


Figure 3-5 Agricultural Lands



Residential

Rural residential areas in western Placer County have generally been limited to the agricultural areas while low, medium, and high density residential is essentially aggregated around the cities. Placer County housing stock totals 129,311 of which 103,295 are single-family dwelling units, 21,299 were multiple family dwelling units and 4,717 were mobile homes/trailers (Table 3-7).

Residential land uses in Lincoln occur primarily around the downtown area and project outward, generally concentrated south of Nicolaus Road and north of the Auburn Ravine. The housing stock of Lincoln is composed of approximately 8,979 single-family residences, 889 multiple family units and 96 mobile homes.

Figure 3-6 Typical residential neighborhood in Lincoln (left) and Sheridan (right).



Sheridan's urban housing occurs within and on the immediate perimeters of the township. The core area is zoned for medium density residential housing while high and low density residential housing lies northwest of the core area on the east and west side of Camp Far West Road, respectively. Single-family dwelling units primarily make up the housing stock; however, one mobile home park has been established within the township.

Industrial

There are approximately 1100 ha (2,750 ac) zoned for industrial, light industrial, and industrial planned development within Lincoln. Currently, an estimated 55% of the land zoned for industrial use is developed, primarily located along Lincoln's northern boundary. Undeveloped industrial land continues to be used for agricultural uses until development is necessary. The most prominent industrial companies include the Gladding-McBean clay manufacturing plant, Sierra Pacific Industries wood products, the American Poly-Therm aerospace plant, Weco aircraft gauges and D&D Cabinets. Sheridan's Sunset Industrial Park lies adjacent to the township, straddling SR 65. Currently, 10 ha (26 ac) are zoned for industrial use in Sheridan and is not expected to expand in the near future.

Figure 3-7 Gladding McBean clay manufacturing plant and Sierra Pacific Lumber

Commercial

Lincoln's downtown business district is composed of mixed commercial, retail, professional offices, and service outlets. There is approximately 1.2 ha (3 ac) zoned for commercial use located in a corridor along SR 65 between "H" and "E" Streets. Some of the older buildings in the business district have been restored while new construction has primarily been comprised of fast food restaurants. Nevertheless, the downtown area has generally been maintained.

Figure 3-8 Typical downtown Lincoln and Sheridan businesses

Sheridan has set aside approximately 4 ha (10 ac) to be zoned for commercial uses. Resembling other rural communities, some businesses provide dual services such as the grocery/hardware store and the small market/bait store. Commercial zones are located along SR 65 and Camp Far West Road; however, many of the existing buildings are currently vacant.

Resource Protection, Greenbelt, Open Space, and Recreation

Placer County, the City of Lincoln and Sheridan have all identified agriculture as a major resource to be protected. Protection of agricultural land uses is generally in the form of buffer zones. These buffer zones can be greenbelts, open space and recreational facilities. Riparian vegetation along the Markham and Auburn Ravines as well as urban reserve in Lincoln's southeast region currently provides natural buffer zones. Buffer

zones are not employed within the Sheridan planning area; however, Sheridan's land use designations have provided a "gradation" between the farmlands and urban development.

Placer Legacy Project

Recently, Placer County has implemented the Placer Legacy Project. The Placer Legacy Project is intended to develop specific, economically viable implementation programs that focus on the preservation of open spaces in order to maintain the abundance of the existing diverse natural habitats while supporting the economic viability of the County and enhancing property values. The Citizens Advisory Committee, the Interagency Working Group and the Scientific Working Group work under the umbrella of the Placer Legacy to develop programs where no programs currently exist and strengthen existing programs.

Placer Legacy is proposing that Placer County put up to 30,352 ha (75,000 ac) of land into a preserve anticipated to cost up to \$183 million. How much land the Placer Legacy program can acquire will be based on the financial resources available to the county, including tax revenues, State or Federal grants and donations.

Currently, Placer County is working in cooperation with the Regulatory Agencies in developing a Natural Communities Conservation Plan/Habitat Conservation strategy.

3.1.3 Developable Land

Generally, development in Placer County has been concentrated around the major cities, consistent with the land use zoning specified in the General Plan. Conversely, the City of Lincoln has zoned much of the agricultural land and open space as urban reserve.

Sheridan, being under the jurisdiction of Placer County with a strong agricultural influence, has not set aside additional areas as urban reserve. Moreover, empty lots are still available for development scattered within the already developed areas.

Development Trends

Within the Study Area, Lincoln is generally the only area that is experiencing growth or expects growth in the near future. Lincoln has steadily been growing from the existing city limits outward into its sphere of influence. Currently, all the developments that had been approved at the time the Draft EIR/S was prepared have been built. Developments that have been completed during the preparation of the final report include: Auburn Ravine Oaks, Laehr Estates, Brookview 2, Brookview 3, Park Estates 1-3, Glenmoor, Lakeside Estates 5, Lakeside Estates 1-3, Brookview 4 and Lakeside Estates 4 and Teal Hollow. Other developments listed in Table 3-1 and shown in Figure 3-9 are in various planning and construction stages. As development proceeds outward,

Lincoln has adopted the use of planned developments as a means to prevent urban sprawl.

Table 3-1 Current Projects for the City of Lincoln (10/14/04) (refer to Figure 3-9)

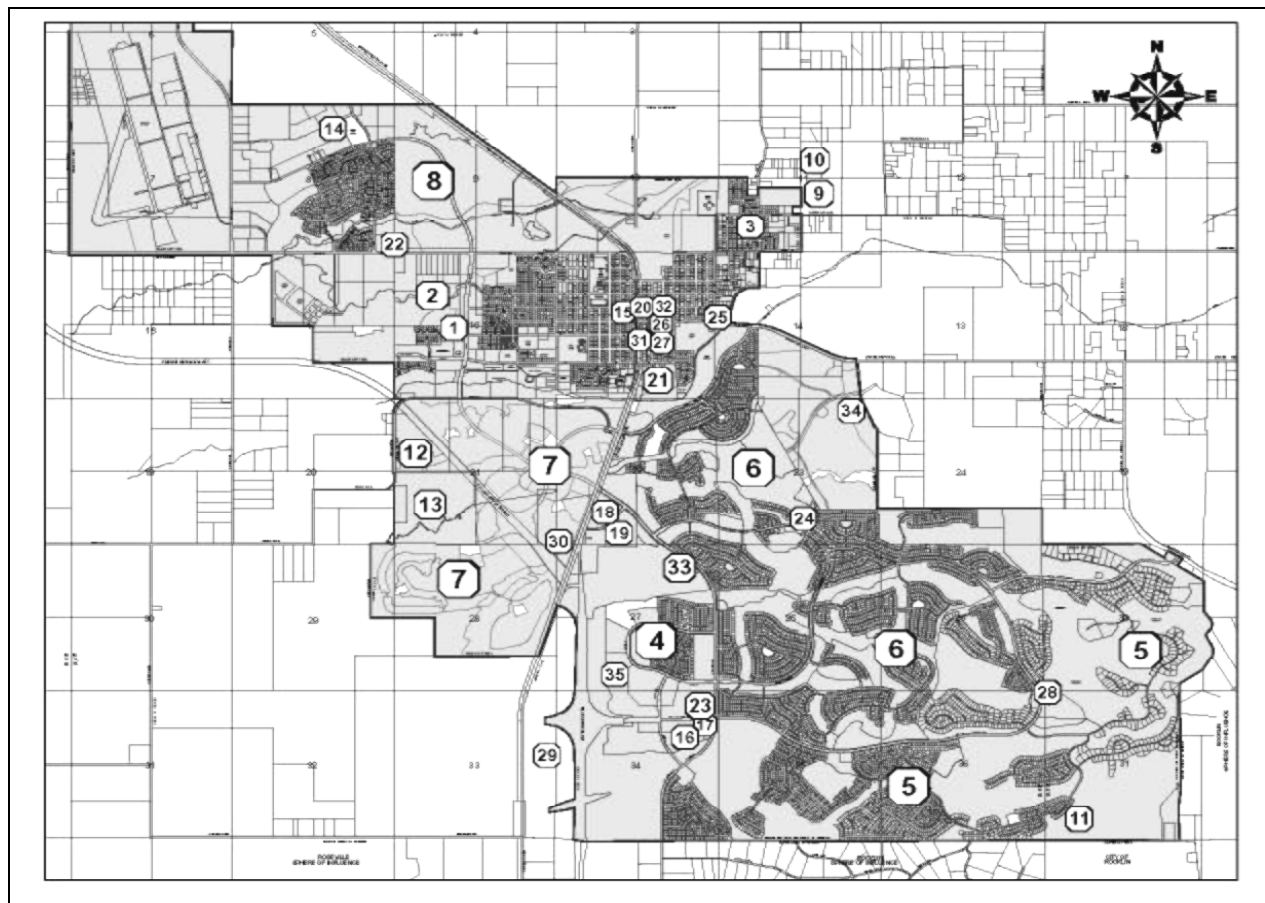
# On Map	Residential Projects		
1	Lincoln Terrace Apartments	80 Unit apartment complex	2.06 ha (5.1 ac)
2	Brookview IV	209 Single Family Residential	23.4 ha (58 ac)
3	<u>Sycamore Ventures</u>	<u>14 Single Family Infill lots</u>	Not available
4	<u>Twelve Bridges Area C</u>	<u>100 Unit Planned Development</u>	20.23 ha (50 ac)
5	<u>Twelve Bridges Area A</u>	<u>4,335 Unit Planned Development</u>	1209.6 ha (2,989 ac)
6	<u>Twelve Bridges Sun City Lincoln Hills</u>	<u>11,235 Unit Planned Development</u>	1191.8 ha (2,648 ac)
7	<u>Lincoln Crossing</u>	<u>2,958 Unit Planned Development</u>	433.0 ha (1,070 ac)
8	<u>Foskett Ranch</u>	<u>323 low- and high-density residential</u>	117.36 ha (290 ac)
9	Lincoln Highlands	196 Residential	19.42 ha (48 ac)
10	Cypress Meadows	84 Residential	8.09 ha (20 ac)
11	Western Placer Education Foundation	71-lot single family homes	10.52 ha (26 ac)
12	<u>Three D South</u>	<u>185 lot subdivision</u>	28.29 ha (69.9 ac)
13	<u>Aitken Ranch</u>	<u>472 unit planned development</u>	63.13 ha (156 ac)
14	Lakeside 6	706 Residential units	42.49 ha (105 ac)
	Industrial/Commercial Projects		
15	Butterfield Building Renovations	Historic building renovations	Not available
16	Lincoln Village Shopping Center	Shopping center (95,424 ft ²)	4.09 ha (10.1 ac)
17	<u>Chevron Station, Twelve Bridges</u>	<u>Gas station, convenience store, carwash (2,945 ft²)</u>	Not available
18	Sterling Pointe Shopping Center	Shopping Center with Supermarket (144,000 ft ²)	Not available
19	<u>Parkway Pointe Shopping Center</u>	<u>Shopping center (179,800 ft²)</u>	Not available
20	Almond Tree Commercial Building	Restaurant, lounge, office space (14,103 ft ²)	Not available
21	<u>Lincoln Gateway</u>	<u>Retail, commercial, office, housing</u>	7.34 ha (18.14 ac)
22	<u>Nicolaus Retail Center</u>	<u>Commercial (20,400 ft²)</u>	0.93 ha (2.3 ac)
23	<u>Lincoln Commercial Center</u>	<u>Shopping center with supermarket (118,763 ft²)</u>	5.38 ha (13.3 ac)
24	Del Webb Commercial Development	Neighborhood shopping center (19,910 ft ²)	1.0 ha (2.47 ac)
25	Lincoln Produce	Market and office (10,700 ft ²)	Not available
26	<u>Zisk Office Building</u>	<u>Residential conversion to Office space</u>	Not available
27	<u>Farrington Office Building</u>	<u>Office Building (8,050 ft²)</u>	Not available
28	<u>Catta Verdera Country Club</u>	<u>Private Country Club (27,000 ft²)</u>	Not available
29	<u>Lincoln 270</u>	<u>City annexation</u>	112.5 ha (278 ac)
30	<u>Home Depot</u>	<u>Commercial building and garden</u>	Not available

# On Map	Residential Projects		
		center (106,507 ft ² and 34,646 ft ²)	
<u>31</u>	<u>Volen Commercial Buildings</u>	<u>2-Story Commercial Building</u> (5,032 ft ²)	Not available
<u>32</u>	<u>Lavallee Office Building</u>	<u>Office/Retail (1,404 ft²)</u>	Not available
Other:			
33	Granite Springs Church	35,075 ft ²	Not available
<u>34</u>	<u>St. Joseph's Catholic Church</u>	<u>20,851 ft²</u>	Not available
<u>35</u>	<u>Kaiser Permanente</u>	<u>2 Story Medical Building (75,138 ft²)</u>	Not available

Updated 10/14/04 by Juanita Cano, Community Development Department

Underlined projects updated 6/22/05, Source: <http://www.ci.lincoln.ca.us/pagedownloads/Current%20Projects%205-3-05.pdf>

Figure 3-9 Current Projects in the City of Lincoln



Updated 10/14/04 by Juanita Cano, Community Development Department

3.1.4 Federal, State, County and City Adopted Goals and Policies

Agriculture

Federal Policies

In accordance with the National Environmental Policy Act (NEPA) and the provisions of the Farmland Protection Policy Act (7 USC 4201-4209; and its regulations, 7 CFR Part 658), Federal actions that would result in a conversion of prime, unique, statewide, or local important farmland to non-farm use must examine the effects of the action using the criteria set forth in the Act, and, if there are adverse effects, must consider alternatives to lessen them. Early consultation with the Natural Resource Conservation Service (NRCS) and completion of a Farmland Conversion Impact Rating (Form AD 1006) was conducted on June 22, 1999.

State Policies

The State of California has a voluntary program by which owners of farmland or open space can define their land as an Agricultural Preserve through the use of California Land Conservation (Williamson) Act contracts. Landowners are offered a preferential tax rate based on a property's agricultural value, rather than its full market value. In return, the landowner is required to sign a contract with the appropriate local jurisdiction stipulating that the owner will not develop the land for a minimum of a ten-year period. Each year the contract is automatically renewed for a new ten-year period, unless the landowner notifies the local government of the desire not to renew. In that case, the land use restrictions remain in effect until the remaining nine years of the contract have passed. There are also provisions for canceling the contract if cancellation is consistent with the purposes of the Williamson Act or otherwise found to be in the public interest.

The Department of Conservation Farmland Mapping and Monitoring Program has tracked protected farmland under the California Land Conservation (Williamson) Act. Figure 3-5 shows the farmland in Placer County and Figure 3-4 shows farmland under the Williamson Act.

Table 3-2 distinguishes the number of affected farmlands that are under Williamson Act contracts, farmlands that have opted to not renew the Williamson Act contracts but are still subject to land use restriction for the remainder of the contract, irrigated farmland that is under normal ownership and vacant or dry farmland under normal ownership.

Table 3-2 Affected Farmland Parcels by Alternative

Alternative	CLCA Restriction (Williamson Act)		Farms Under Normal Ownership		Total Affected Farmland
	Under Contract ¹	Non- Renewal ²	Irrigated Farm ³	Vacant, Dry Farm ⁴	
A5C1	8	7	1	6	22
AAC2	9	7	1	5	22
D1	14	13	3	7	37
D13	17	13	3	8	41
D13 South Modified	15	7	1	5	28
D13 North Modified	16	8	1	4	28

Source: Dept. of Conservation, Division of Land Resource Protection, Farmland Mapping and Monitoring Program, Placer County 1996 Land Conservation Act Enrollment.

¹ “Under Contract” means that these farmlands are under an automatically renewable contract provided by the California Land Conservation Act (Williamson Act) for a ten-year period.

² “Non-Renewal” means that the landowners had previously signed a ten-year contract provided by the California Land Conservation Act (Williamson Act) but have opted not to renew. Therefore, the farmland is subject to land use restrictions for the remaining nine years of the contract.

³ “Irrigated Farm” means that the land is considered irrigated farmland under normal ownership. Therefore, the farmland is under no land use restrictions.

⁴ “Vacant, Dry Farm” means that the land is either vacant but previously farmed or is dry farmed and is under normal ownership. Therefore, the farmland is under no land use restrictions.

Placer County Policies

Recognizing the importance of agriculture, the Placer County Board of Supervisors adopted the Placer County Agricultural Element (1989) to supplement the Countywide General Plan in order to “establish policies that will improve the viability of agricultural operations and promote the conservation of agricultural land.”

City of Lincoln Policies

Although agriculture does not occupy a large amount of the area within the City of Lincoln, there are policies outlined in the General Plan to retain rural agricultural areas until the need for development emerges. These agricultural policies are meant to ensure that agriculture will continue to be a significant land use by implementing planned development based on economic and population needs. Additionally, Lincoln has adopted the policy to require that agricultural land uses be buffered from urban land uses using greenbelts, open space setbacks, soundwalls, fencing and berming.

Sheridan Community Policies

Sheridan’s economy is strongly influenced by the agricultural presence; consequently, the General Plan emphasizes the preservation of agricultural land uses. Sheridan’s goal for agriculture as an environmental resource specifies “more productive agricultural soils be put to agricultural uses rather than being converted to non-agricultural activities.” Additionally, Sheridan’s community development goal also

encourages the “continued and increased agricultural activity on lands conducive to agricultural uses.”

Residential

Placer County Policies

According to the Placer County General Plan, the goal for residential land use is “to provide adequate land in a range of residential densities to accommodate the housing needs of all income groups expected to reside in Placer County.” This is accomplished by promoting new residential development in higher-density residential areas located along major transportation corridors and transit routes.

City of Lincoln Policies

The goal for residential land use outlined in the Lincoln General Plan is “to designate, protect and provide land to ensure sufficient residential development to meet community needs.” The city seeks to accomplish this by providing a variety of land use designations that will meet the future needs of the city and promote flexibility and innovation in residential land use through the use of planned unit developments, developer agreements, specific plans, mixed use projects and other innovative development and planning techniques.

Recently, the City’s residential developments have increased due to population growth and housing demands. Lincoln’s General Plan is currently being updated. It is anticipated that new residential zoning will be added within the City’s sphere of influence.

Sheridan Community Policies

The Sheridan Community General Plan has adopted a residential land use goal to provide sound and adequate housing and positive living experience for all residents in the plan area. However, there have not been any policies implemented to support Sheridan’s land use goal.

Industrial

Placer County Policies

The Placer County adopted goal for industrial land use states that it will “designate adequate land for and promote development of industrial uses to meet the present and future needs of Placer County residents for jobs and maintaining economic vitality.”

Additionally, the County shall designate specific areas suitable for industrial development and reserve such lands in a range of parcel sizes to accommodate a variety of industrial uses.

City of Lincoln Policies

The industrial land use goal for the City of Lincoln is “to designate sufficient land for existing and new industrial uses that is compatible with the existing community.” Policies supporting industrial land uses in the City of Lincoln include designating land sufficient to meet future needs by promoting planned mixed-use developments.

The City anticipates light industrial development surrounding the current local airport, which supports their plans to expand the airport.

Sheridan Community Policies

Sheridan’s industrial land use goal and policies encourage the development of industry where suitable lands and public services are available. Additionally, the Sheridan General Plan emphasizes that industrial land uses should not conflict with adjacent uses.

Commercial***Placer County Policies***

Similar to Placer County’s industrial land use goal, the adopted commercial land use goal is “to designate adequate commercial land for, and promote development of, commercial uses to meet the present and future needs of Placer County residents and visitors and maintain economic vitality.”

The diversion of “through” traffic from the downtown business district will likely promote pedestrian circulation from nearby residential areas. The mixed-use planned development projects will also encourage pedestrian circulation since they include both residential and commercial land uses. Furthermore, it is likely that a majority of the commercial land uses will be located near the chosen alignment to avoid noise impacts on residential areas.

City of Lincoln Policies

The City of Lincoln has adopted a commercial land use goal “to retain and renew existing commercial land uses and designate sufficient new commercial areas to meet future city needs.” To support Lincoln’s land use goal, policies address issues of land use incompatibilities by implementing planned mixed-use development projects.

Sheridan’s Policies

Sheridan’s goal for commercial land use is to “provide convenient and sufficient commercial facilities for the daily needs of residents and travelers through the area.” The Sheridan General Plan implements a commercial land use policy of expanding

commercial areas on routes of major traffic; however, the County would be responsible for new commercial development and the remodeling of existing commercial structures.

Resource Protection, Greenbelt, Open Space, and Recreation

Placer County Policies

Placer County's goal for resource protection, greenbelts, open space and recreation is to establish and maintain interconnected greenbelts and open spaces for the protection of native vegetation and wildlife and for the community's enjoyment. This goal is accomplished by identifying significant natural, open space and cultural resources in advance of development to allow incorporation into the project design. In addition, the County requires that development avoid areas rich in wildlife or of a fragile ecological nature.

The Placer Legacy Citizens Advisory Committee (Placer Legacy) has been formed to help develop a long-range comprehensive open space protection plan. Along with the formation of the Placer Legacy, an open space trust fund has been established to ensure the protection and maintenance of open space lands in Placer County.

City of Lincoln Policies

The City of Lincoln's goal is to designate, protect, and conserve natural resources, open space and recreation lands in the City; and provide opportunities for recreational activities to meet citizen needs.

Sheridan Policies

Sheridan's goal for resource protection, greenbelts, open space and recreation is to plan for adequate recreational facilities. However, there have not been any policies adopted to support this goal.

3.1.5 Demographic Profile and Trends

The following sections identify the composition of the areas affected by the proposed project.

The Study Area is composed of census tracts 213.01, 213.03, 213.04, 214.01 and 214.02. Information regarding the Study Area's demographic profile and trends were compiled from the 2000 United States Census (U.S. Census) and from the California Department of Finance where available. Census tracts 213.01 and 213.04 include the Sheridan community as well as the outlying rural agricultural areas. Projections and estimates regarding the more urban area of Lincoln have been provided whenever available to establish trends of the Study Area.

Population

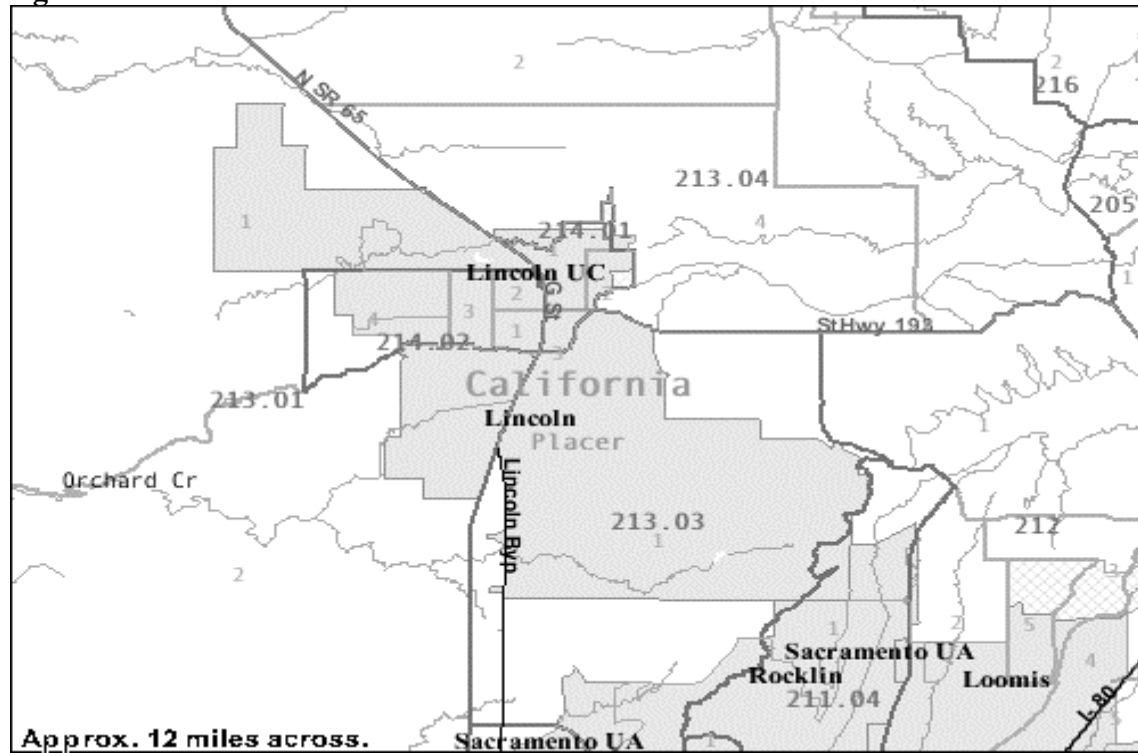
The population totals for census tracts 213.01, 213.03, 213.04, 214.01 and 214.02 were 2,747, 5,479, 4,727, 2,495, and 6,960 respectively, totaling 22,408 people. According to the Sacramento Area Council of Governments, Lincoln had moderate population growth up until 1999. From 1999 to 2000, population jumped approximately 29%. This annual growth rate is expected to decrease and level off in 2015 to a rate of less than 1% making the average annual growth rate for the next 25 years at 7.35%. Expected population in Lincoln by the year 2025 is approximately 33,000. (<http://sacog.org/demographics/projection>).

Age Distribution

The median age range for tracts 213.01, 213.03, 213.04 and 214.01 in 2000 was 33-40 while tract 214.02 the median age was 30. The median age range may increase for tract 213.03 and 213.04 once the Twelve Bridges development is constructed due to the 6,334 age-restricted dwelling units intended for seniors.

Ethnic Mix

Table 3-3 shows that White residents dominated the 2000 population (78.5% in the Study Area with 17,601 persons). The Placer County ethnic make-up shows analogous trends and is projected to maintain a similar ethnic mix. Based on Community Impact Assessment, tract 214 Block Group 2 (based upon 1990 census) does have a high concentration of minorities. Census 2000 shows the following blocks as having a high percentage of minorities: 213.03, 213.04 and 214.02. These areas straddle the existing alignment and are not expected to incur direct impacts from any of the proposed alignments. A potential indirect impact could include a decrease in accessible public transportation. Although minor changes to the current bus route are inevitable due to access changes, local transit authorities anticipate that the areas serviced will increase as the needs change due to development.

Figure 3-10 Census Tracts**Table 3-3 Ethnic Composition of the Study Area Population for 2000**

Ethnicity	Tract 213.01 (% of tract total)	Tract 213.03 (% of tract total)	Tract 213.04 (% of tract total)	Tract 214.01 (% of tract total)	Tract 214.02 (% of tract total)	Study Area Total	Percentage of Study Area
White	2343 (85.3%)	4700 (85.8%)	4065 (86%)	1789 (71.7%)	4704 (67.6%)	17,601	78.5%
Black	23 (0.8%)	87 (1.6%)	14 (0.3%)	3 (0.1%)	31 (0.4%)	158	0.7%
American Indian, Eskimo Aleutian, Asian, Pacific Islanders, and other	83 (3.0%)	300 (5.5%)	158 (3.3%)	35 (1.4%)	162 (2.3%)	738	3.3%
Hispanic	298 (10.8%)	392 (7.2%)	490 (10.4%)	668 (26.8%)	2063 (29.6%)	3,911	17.5%
Total	2,747	5,479	4,727	2,495	6,960	22,408	100%

U.S. Census Bureau 2000

3.1.6 Household Size and Composition

Table 3-4 shows the number of households, number of families, and the persons per family found in the Study Area in 2000. Tract 213.03 had the highest percentage of families (86.2% living together, followed by tract 213.01 (81.9%), and tract 213.04 (80.7%). For the Study Area, 81.8% of the households were home to families. The family size ranged from 3.20 to 3.33 persons per family in the area. Similar to the age distribution of the Study Area, the average family size may decrease due to an influx of older persons projected to move into the age-restricted homes currently planned.

Table 3-4 Household Population in Study Area (2000)

	Tract 213.01	Tract 213.03	Tract 213.04	Tract 214.01	Tract 214.02	Total
Households	975	1,842	1,636	856	2,297	7,606
Families	799	1,587	1,320	656	1,799	6,161
Average family size	3.10	3.20	3.17	3.27	3.33	-

U.S. Census Bureau 2000

3.1.7 Personal Income

Table 3-5 outlines income levels for the Study Area. Poverty guidelines for 1999 are \$ 16,700 for a family of four. Poverty guidelines for 2001 are \$17,650 for a family of four. (U.S. Census Bureau 2000) The mean percentage of persons living below the poverty rate in 1999 was 6.38% with a standard deviation of 5.8. Therefore, areas that displayed percentages greater than 12.2% may be considered high concentration areas of low-income people. Census tract 214.01 Block Group 1 has 13.5% of its population living below the poverty rate. Census tract 214.02 Block Group 3 has a highest percentage of its population living below poverty status with 20.6%. However, this area will continue to grow and further construction of new homes would have the potential to attract people with higher incomes and would change the income profile of the block group. Furthermore, the region has benefited from a surge of hi-tech industries that has contributed to lowering the unemployment rate and potentially decreasing the amount of people living below the poverty rate.

Table 3-5 Income and Poverty Data for Study Area (1999)

Census Tract	213.01		213.03	213.04			
Block Group	1	2	1	1	2	3	4
Median Household Income	58,689	52,500	87,347	51,144	36,000	54,539	68,661
Median Family Income	67,727	53,854	91,081	69,583	33,646	56,458	86,005
Per Capita Income	24,090	22,044	32,597	24,474	22,320	28,468	21,583
Persons Below Poverty Status*	80	87	25	211	27	72	18
Percentage of Persons Below Poverty Status	4.6%	8.6%	0.4%	1.2%	4%	5.8%	1.7%

*Poverty guidelines for 1999 are \$ 16,700 for a family of four. Poverty guidelines for 2001 are \$17,650 for a family of four. U.S. Census Bureau 2000

Table 3-6 Income and Poverty Data for Study Area (1999) Continued

Census Tract	214.01			214.02			
Block Group	1	2	3	1	2	3	4
Median Household Income	45,156	29,861	53,393	47,639	41,806	33,086	75,044
Median Family Income	47,361	34,643	62,813	49,567	50,833	38,233	78,076
Per Capita Income	19,552	15,022	22,122	17,804	15,139	13,914	30,641
Persons Below Poverty Status*	141	58	8	75	95	903	0
Percentage of Persons Below Poverty Status	13.5%	6.6%	2.3%	7.8%	1.2%	20.6%	0%

*Poverty guidelines for 1999 are \$ 16,700 for a family of four. Poverty guidelines for 2001 are \$17650 for a family of four. U.S. Census Bureau 2000

Housing Characteristics

Housing Stock

In January, 2004, Lincoln had a total of 9,964 housing units composed of 90.11% single family residents, 8.92% multiple unit complexes, and .96% mobile homes (Table 3-7). The housing vacancy rate was 3.78%. Neighboring cities such as Rocklin and Roseville experienced vacancy rates of 3.58% and 3.72% respectively. The high 11.22% vacancy rate for Placer County is likely due to the popularity of vacation homes in the resort areas of the county.

Table 3-7 Placer County Housing Estimates (2004)

Area	Total Housing	Single Family	Multiple Unit	Mobile Home	Occupied	Percent Vacant	Persons/ Household
Auburn	5,732	4,052	1,680	0	5,569	2.84	2.232
Colfax	784	524	227	33	758	3.32	2.346
Lincoln	9,964	8,979	889	96	9,587	3.78	2.392
Loomis	2,342	2,162	67	113	2,274	2.90	2.723
Rocklin	19,175	14,140	4,596	439	18,461	3.72	2.638
Roseville	40,136	30,611	8,982	543	38,700	3.58	2.477
Balance of County	51,178	42,827	4,858	3,493	39,450	22.92	2.563
Unincorporated	78,133	60,468	16,441	1,224	75,349	3.56	2.494
County Total	129,311	103,295	21,299	4,717	114,799	11.22	2.518

Source: California Department of Finance, Demographic Research Unit 2004

The Final Relocation Impact Report (FRIR) indicates that the available single family residences, multiple family units, and mobile homes for rent and for sale was estimated at 4.4% for each category. Although the numbers of multiple-family dwellings

are increasing to meet the increased demand for rental units, the overall ratio of multi-family to single family units remains low.

3.1.8 Economic Conditions

Employment

Table 3-8 shows that in 2001 the leading employment sectors in Placer County were services, trade, government, manufacturing and construction. Industry employment projections for forecast period of 1997-2004 estimates the services industry will grow to 35,600 jobs by the year 2004. Within the services industry, the majority of this growth is projected for the business services component. Trade has been growing steadily and projections for wholesale and retail trade will increase almost 35 percent between 1997-2004. A big portion of this retail growth is occurring due to large retail facilities opening in the Roseville/Rocklin area, such as the Roseville Galleria. Retail growth is expected to continue due to this area being one of the state's fastest population growth areas and rapid increase of high wage jobs in the region. The highest increases in industry markets between 1997 and 2004 will be in Manufacturing (53.4%), Services (43.0%) and Retail Trade (34.7%). Construction transportation/public utilities and finance/insurance/real estate are also expected to see increases of jobs available.

Table 3-8 Placer County Employment by Industry (2001)

Industry	Share Of Market
Services	27.3%
Retail Trade	22.4%
Government	15.4%
Manufacturing	11.8%
Construction & Mining	11.7%
Finance, Insurance & Real Estate	5.7%
Transportation & Public Utilities	3.6%
Wholesale Trade	3.0%
Agriculture	.3%

California Employment Development Department, 2002 Snapshot at <http://www.calmis.ca.gov>

Employers

Table 3-9 shows that in 2004, the largest employers in Placer County were located in Roseville, including Hewlett-Packard, PRIDE Industries and Kaiser Permanente and Thunder Valley Casino. In addition, many high technological companies have relocated to Roseville in the recent years. Projections indicate that Placer County will continue to attract high technology industries because of quality of life, cost of housing and recreational opportunities. As the county seat, Auburn has a high concentration of government workers while Rocklin's prominent employers are Hewlett-Packard and

TASQ Technology Inc. The City of Lincoln's leading employer, Sierra Pacific Industries, ranks in the lower spectrum of major employers in Placer County.

Table 3-9 Largest Private Sector Employers in Placer County (2004)

Name – City	Industry	Number of Employees
Hewlett-Packard Company – Roseville, Rocklin	Computer & Office Equipment-Manufacturing	4,000
Kaiser Permanente – Roseville	Hospitals	2,707
Thunder Valley Casino	Casinos	2,200
Sutter Roseville Medical Center – Roseville	Hospitals	1,672
Squaw Valley Ski Corp. – Olympic Valley	Misc. Amusement, Recreation Services	1,500
Union Pacific Railroad – Roseville	Transportation, Railroad	1,200
Pride Industries – Auburn/Roseville	Individual & Family Services	1,050
SureWest Communications	Telecommunication Services	1,000
NEC Electronics USA Inc. – Roseville	Electronic Components & Accessories	850

Source: Sacramento Regional Research Institute, December 2004.

Labor Force

As shown in Table 3-10, the 2004 civilian labor force in Placer County was 143,500 with a 3.8% unemployment rate. Unemployment in Placer County has been steadily dropping since its peak of 8.0% in 1992. Of the communities in the vicinity of the Study Area, Lincoln's unemployment rate was the highest at 4.5% followed by Roseville at 4.1%.

Table 3-10 Placer County Civilian Labor Force and Employment Rates (12/04)

Area Name	Labor Force	Employment	Unemployment	Unemployment Rate
Placer County	143,500	138,000	5,500	3.8%
Auburn	8,270	7,990	280	3.3%
Lincoln	5,450	5,200	250	4.5%
Loomis	4,590	4,420	170	3.7%
Rocklin	16,720	16,120	600	3.6%
Roseville	37,750	36,220	1,530	4.1%

Source: California Employment Development Department, Labor Market Information Division, December 2004

Personal Income

Table 3-11 outlines income levels for tracts 213.01, 213.03, 213.04, 214.01 and 214.02. In 2000, 8% of the population in the Study Area lived below the poverty level. Poverty guidelines for 2001 are \$ 17,650 for a family of four. Tract 214.02 had the highest percentage (15%) of people living under the poverty guidelines followed by tract 214.01 that had 8.2%% people while tract 213.01 had 6%, tract 213.03 had .5%, and tract 213.04 had 6.9%.

Table 3-11 Income and Poverty Data for 2000

	Tract 213.01	Tract 213.03	Tract 213.04	Tract 214.01	Tract 214.02	Total
Median Household Income	\$56,432	\$87,347	\$52,286	\$41,010	\$40,995	-
Median Family Income	\$60,129	\$32,597	\$24,577	\$18,192	\$16,151	-
Per Capita Income	\$23,336	\$32,597	\$24,577	\$18,192	\$16,151	-
Persons Below Poverty Status*	167	25	328	207	1,073	1,800
Households with Public Assistance Income	39	23	40	28	181	311

*Poverty guidelines for 1999 are \$ 16,700 for a family of four. Poverty guidelines for 2001 are \$17650 for a family of four. U.S. Census Bureau 2000

Fiscal Conditions

Placer County collected approximately \$63 million in property taxes for the 2001-02 fiscal year in comparison to the \$35.1 million collected in the 1995-96 fiscal year. Property taxes in the City of Lincoln also increased during this period, and accounted for over \$1 million of their \$6 million tax revenue total received in the 2001-02 fiscal year. Due to the increasing residential development in the Study Area, property taxes are expected to continue to increase.

Based on the Study Area's sales tax figures, business activity has decreased over the past few years. Many of the companies now located in Lincoln are of a manufacturing and service nature. There has been a steady decline in sales tax revenue because many shopping centers have emerged in Rocklin and Roseville. However, sales oriented business in Lincoln are expected to rise by 15% to 20% over the next five to ten years which would potentially increase the sales tax revenue.

3.1.9 Jobs/Housing Balance

Regional Jobs/Housing Conditions

Employment in Placer County is expected to increase by 98% by 2025 from the year 2000 and the employment in neighboring Sacramento County are expected to increase by 45% during that same time frame. Statistics for housing for the same period show that Placer County is expected to increase by 77% while housing in Sacramento County is expected to increase by 40%. Due to Lincoln's proximity to regional job markets such as Roseville and Rocklin, the City of Lincoln will experience an increase in housing to accommodate regional growth. The expected increase in population is likely due to the dwelling units proposed for the Study Area that are primarily concentrated in and around the City of Lincoln. However, the largest planned residential development, Twelve Bridges, will consist of 6,334 age-restricted dwelling units that will potentially increase the percentage of the retired population. However, this is not likely to impact regional jobs or commuting traffic. Although the planned developments have included

approximately 86.4 ha (213.4 ac) of commercial land use and there is still an abundance of vacant industrial land available, it is likely that a large portion of the population will continue to commute to the outlying areas.

3.1.10 Existing Travel Patterns

Currently, SR 65 is the main street serving the community of Lincoln. Most of the businesses in Lincoln are located either on or just off SR 65. City Hall is one block down from SR 65 and the Library and the Pavilions; a community hall, are both generally accessed via SR 65 or SR 193. Outside the business core of the city of Lincoln are residential areas. Figure 1-4, in Chapter 1, shows the circulation system as found in the Lincoln General Plan.

Due to the proximity of the regional job markets in Rocklin, Roseville and Sacramento, commuting on SR 65 will increase thus placing further demand upon the existing highway. According to commuting statistics for 2000, of the 4,698 workers in Lincoln who commuted to work, 3,609 of them drove alone and 749 carpooled. Only 132 workers walked to work and 156 worked at home. The mean travel time to work was 28.6 minutes.

SR 193 provides a link with the community of east Rocklin and Sierra College, a community college.

Bicycles & Pedestrians

Bicycle routes are discussed in Chapter 1, Section 3.6. SR 65 is not included in the adopted bicycle plan for Lincoln; however, the portion of SR 65 from Roseville to SR 193 is included in the Placer County Master Bikeways Plan. This would remain the same after the Bypass was constructed.

SR 65 is a busy road, and pedestrians generally only use this road when their car breaks down. Through the town, however, pedestrian traffic is common.

3.1.11 Community Facilities and Services

Figure 3-11 shows the community facilities such as schools, libraries and fire departments. The town of Sheridan has no facilities such as a Fire Department or library, instead relying on Lincoln's facilities and services.

Schools

Carlin C. Coppin Elementary, Valley View Elementary, Creekside Oaks Charter Elementary, First Street Elementary and Heritage Elementary Schools are located in Lincoln and Sheridan Elementary School is located in Sheridan. The Glen Edwards Middle School is located in Lincoln as well as three high schools, Lincoln High School, Lincoln High North, and Phoenix High School. The Horizon Instruction Systems

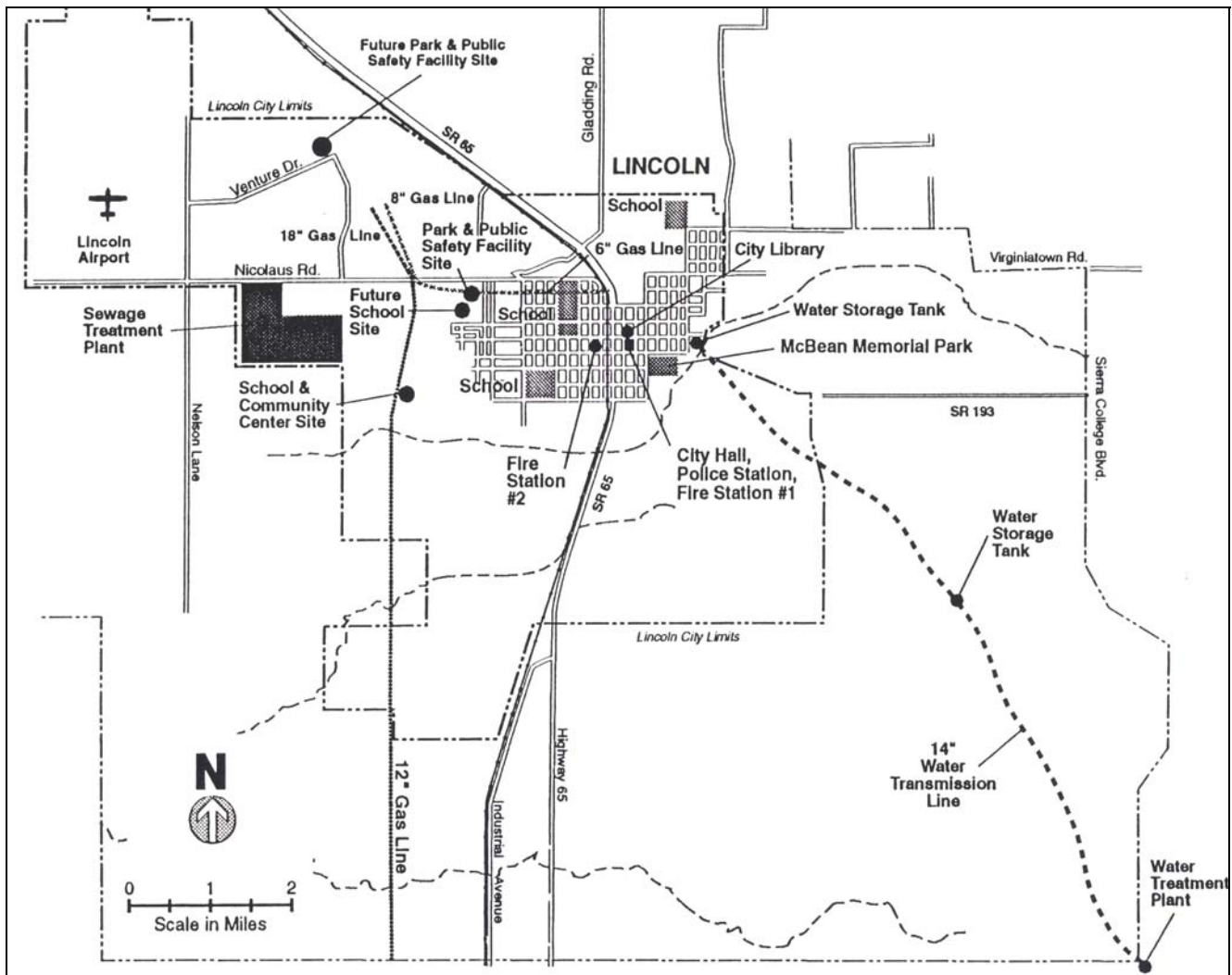
independent correspondence study program serves K-12 students that generally do not live in Placer County although it is located in Lincoln.

Police and Fire Protection

The area under Placer County's jurisdiction is patrolled by the Placer County Sheriff's Department. The Sheriff's Department is responsible for general law enforcement activities throughout the County. Similarly, the City of Lincoln Police Department has jurisdiction within the City limits and provides general law enforcement.

The South Placer Fire Protection District provides services to areas under the County's jurisdiction. The City of Lincoln's volunteer Fire Department is housed with the City of Lincoln Police Department.

Figure 3-11 Community Services & Public Facilities



3.2 GEOGRAPHY AND TOPOGRAPHY

3.2.1 Topography

The proposed project is located near the eastern edge of the lower Sacramento Valley. The Sacramento Valley is a broad lowland, approximately 80 km (50 mi) wide in the project area. The Coast Range on the west and the Sierra Nevada Range to the east border the valley. The project area is characterized by gently rolling hills, ranging in elevation from 24 to 46 m (80-150 ft) above sea level, sloping to the north and west toward the Bear and Feather Rivers. Prominent topographic features within the project area include the Auburn Ravine, Markham Ravine and Ingram Slough.

3.2.2 Climate

The climate in Lincoln is characterized by hot, dry summers and cool, wet winters, which is typical of the California Central Valley. Average temperatures range from about 27° C (80° F) in summer to 7° C (45° F) in winter, with temperature extremes of 47° C (110° F) in summer and -7° C (20° F) in winter. Annual rainfall averages about 5.6 cm (22 in) per year, with most of it falling between October and March (Lincoln General Plan, 1988).

3.2.3 Soils

The soils within the Study Area are predominately of the Fiddymment-Trigo-Rocklin association. The soils in this association occur on gently sloping terraces and strongly sloping sideslopes.

To the east, they adjoin the bedrock areas of the lower foothills. These soils are mostly well drained and developed in granitic alluvium and outwash from the Sierra Nevada Mountains. They are mostly shallow, meeting with claypans or hardpans and have medium runoff and moderate erosion hazard (SACOG 1988b). Soils in this area include Cometa-Fiddymment Complex, Cometa-Ramona Sandy Loams, Kilaga Loam, San Joaquin Sandy Loam, and Xerofluvents (EIP Associates 1992b). The erosion hazard of the soils varies from slight erosion hazard in the floodway fringes to high erosion hazard in the recent alluvium deposits adjacent to stream channels (Caltrans 1999).

The Placer County Natural Resources Conservation District completed a survey of productive soils for Placer County, and identified areas within the Lincoln planning area having prime soils. Major prime soil areas exist adjacent to the Auburn Ravine, north of the Gladding McBean plant, and in the southwestern portion of the planning area. All alternatives will pass through some of the prime soils with Alternatives D1 and D13 passing through a greater amount of the prime soils (Caltrans 1999).

3.2.4 Geology

The project site is located in the Sacramento Valley portion of the Great Valley Geomorphic Province on California. This portion of the valley is underlain by unconsolidated older alluvium of Pleistocene and Holocene age. Pliocene to Pleistocene deposits of continentally derived sand, silt, clays and poorly sorted gravel underlie older alluvial deposits. Marine sedimentary rocks yielding saline waters may underlie continental derived sedimentary rocks at depth. The geologic basement of the region is composed of meta-sedimentary and meta-volcanic rocks. Structurally, the consolidated sediments have been folded into a west-dipping homocline formed by the westward tilting of the Sierra Nevada structural block (Ross and Gannaway, 1999).

3.2.5 Seismic

Faults in the general region with a moderate to high potential for surface rupture include the San Andreas Fault, approximately 162 km (100 mi) to the west, the Dunnigan Hills Fault located approximately 57 km (35 mi) to the northwest and the Foothills Fault Zone located approximately 16 km (10 mi) to the east. The relevant seismic data is presented in Table 3-12.

Table 3-12 Faults in Area

Fault	Estimated distance from project	Maximum credible earthquake magnitude on Richter Scale
Foothills Fault Zone	16 km East (10 mi)	6.5
San Andreas Fault	162 km West (100 mi)	8.0
Dunnigan Hills Fault	57 km Northwest (35 mi)	6.5

There is no evidence to indicate that the proposed project is located on identified active faults. Therefore, the potential risk of damage due to fault rupture is considered low.

Liquefaction

Soil liquefaction is a process by which water-saturated sediment temporarily loses strength and acts as a fluid, like when you wiggle your toes in the wet sand near the water at the beach. This effect can be caused by earthquake. Soils most susceptible to liquefaction are loose, clean and uniformly graded fine-grained sands. Silty sands also liquefy during strong shaking. As noted earlier, the underlying soil is a clay material. Therefore, the potential for liquefaction is considered low.

3.3 AIR QUALITY

An Air Quality Report was completed for this project in March 2001. Copies of this report are available for review at the Department of Transportation, District 3 Sacramento office, 2389 Gateway Oaks Dr., Sacramento, CA.

Weather and topography both influence air quality. This region is subject to temperature inversions, trapping pollutants at ground level. Surface inversions 0-152 m (0-500 ft) are most frequent during the winter, while subsidence inversions 305-610 m (1,000-2,000 ft) are more frequent during the summer. Generally, the lower the inversion base height and the greater the rate of temperature increase from the base to the top, the more pronounced will be the effect of the inversion on inhibiting dispersion of pollutants.

This project is located in the Sacramento Valley Air Basin, which is under the jurisdiction of the Placer County Air Pollution Control District (PCAPCD) at the local level and the California Air Resources Board (CARB) at the State level. The U.S. Environmental Protection Agency (EPA) is responsible at the Federal level for the implementation of the Federal Clean Air Act of 1970 and amendments in 1977 and 1990. This act requires the EPA to establish National Ambient Air Quality Standards (NAAQS) in order to protect the public health. These standards as well as State standards are shown in Table 3-13. The Placer County portion of the Sacramento Air Basin is classified as follows: ozone is listed as serious non-attainment for Federal and State level, sulfur dioxide, and nitrogen dioxide are in attainment with both the Federal and State standards; and PM₁₀ is listed as in attainment for the Federal standard and non-attainment for the State standards.

On April 15, 2004, EPA issued designations on attainment and non-attainment of the 8-hour ozone standard. (<http://www.epa.gov/ozonedenignations/>) EPA also issued a new rule classifying areas by the severity of their ozone conditions and establishing the deadline state and local governments must meet to reduce ozone levels.

Projects included in the MTIP are consistent with Sacramento Area Council of Governments (SACOG) Metropolitan Transportation Plan and are part of the area's overall strategy for providing mobility, congestion relief and reduction of transportation-related air pollution in support of efforts to attain federal air quality standards for the region.

Ozone

Ozone is made up of reactive organic gases (ROG) and oxides of nitrogen (NOx), which react in the atmosphere when exposed to sunlight to form ozone. Because photochemical reaction rates depend on the intensity of ultraviolet light and air

temperature, ozone is primarily a summer air pollution problem. Ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and can cause substantial damage to vegetation and other materials. The new ozone standard reduces allowable concentrations from 0.12 parts per million (PPM) averaged over one hour to a standard of 0.08 PPM averaged over an eight hour period.

Carbon Monoxide

Carbon monoxide (CO) is a public health concern because it combines readily with hemoglobin thus reducing the amount of oxygen transported in the blood stream. Motor vehicles are the dominant source of CO emissions and produce localized pollution problems. The Sacramento region is currently in attainment for CO.

Particulate Matter

Particulate matter of 10 and 2.5 microns or less (PM₁₀ and PM_{2.5}, also known as PM coarse and PM fine) is a health concern because particles these sizes pass deeply into the lungs when inhaled. Those smaller particles reflect a mix of rural and urban sources, including agricultural activities, industrial emissions and dust suspended by automobiles and trucks.

PM_{2.5} is considered to be more damaging to human health than PM₁₀. Table 3-13 reflects the current standards. Areas within the Study Area have been designated as non-attainment for the PM₁₀ and PM_{2.5} state standards.

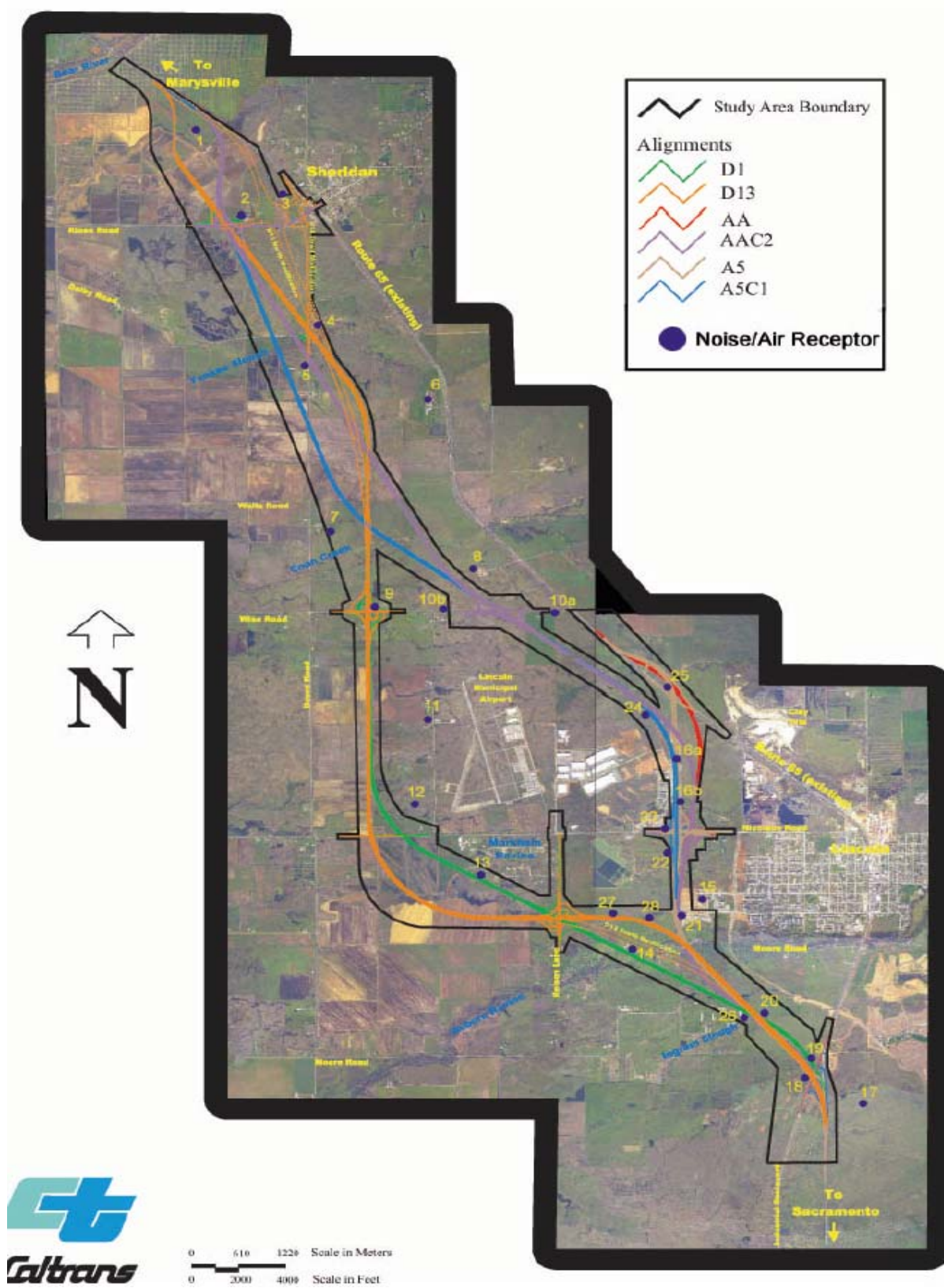
Sacramento County is designated as non-attainment for the Federal PM₁₀ standard, but Placer County is considered Attainment/Unclassified. There are no Federal PM_{2.5} non-attainment areas in the Sacramento Metropolitan area, including the Lincoln area. Conformity requirements under the Federal Clean Air Act apply only for ozone in the Lincoln area.

Table 3-13 Federal and State Ambient Air Quality Standards

Ambient Air Quality Standards						
Pollutant	Averaging Time	California Standards ¹		Federal Standards ²		
		Concentration ³	Method ⁴	Primary ^{3,5}	Secondary ^{3,6}	Method ⁷
Ozone (O ₃)	1 Hour	0.09 ppm (180 µg/m ³)	Ultraviolet Photometry	0.12 ppm (235 µg/m ³) ⁸	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m ³)*		0.08 ppm (157 µg/m ³) ⁸		
Respirable Particulate Matter (PM ₁₀)	24 Hour	50 µg/m ³	Gravimetric or Beta Attenuation	150 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m ³		50 µg/m ³		
Fine Particulate Matter (PM _{2.5})	24 Hour	No Separate State Standard		65 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m ³	Gravimetric or Beta Attenuation	15 µg/m ³		
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10mg/m ³)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m ³)	None	Non-Dispersive Infrared Photometry (NDIR)
	1 Hour	20 ppm (23 mg/m ³)		35 ppm (40 mg/m ³)		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m ³)		—		
Nitrogen Dioxide (NO ₂)	Annual Arithmetic Mean	—	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m ³)	Same as Primary Standard	Gas Phase Chemiluminescence
	1 Hour	0.25 ppm (470 µg/m ³)		—		
Sulfur Dioxide (SO ₂)	Annual Arithmetic Mean	—	Ultraviolet Fluorescence	0.030 ppm (80 µg/m ³)	—	Spectrophotometry (Pararosaniline Method)
	24 Hour	0.04 ppm (105 µg/m ³)		0.14 ppm (365 µg/m ³)	—	
	3 Hour	—		—	0.5 ppm (1300 µg/m ³)	—
	1 Hour	0.25 ppm (655 µg/m ³)		—	—	
Lead ⁹	30 Day Average	1.5 µg/m ³	Atomic Absorption	—	—	—
	Calendar Quarter	—		1.5 µg/m ³	Same as Primary Standard	High Volume Sampler and Atomic Absorption
Visibility Reducing Particles	8 Hour	Extinction coefficient of 0.23 per kilometer — visibility of ten miles or more (0.07 — 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		No Federal Standards		
Sulfates	24 Hour	25 µg/m ³	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m ³)	Ultraviolet Fluorescence			
Vinyl Chloride ⁹	24 Hour	0.01 ppm (26 µg/m ³)	Gas Chromatography			
*This concentration was approved by the Air Resources Board on April 28, 2005 and is expected to become effective in early 2006.						
See footnotes on next page ...						
California Air Resources Board (5/6/05)						

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter—PM10, PM2.5, and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above $150 \mu\text{g}/\text{m}^3$ is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact U.S. EPA for further clarification and current federal policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. Any equivalent procedure which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. Reference method as described by the EPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the EPA.
8. New federal 8-hour ozone and fine particulate matter standards were promulgated by U.S. EPA on July 18, 1997. Contact U.S. EPA for further clarification and current federal policies.
9. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

Figure 3-12 Noise & Air Receptors



3.4 NOISE

A Noise Impact Report was completed for this project in March 2001. Copies of this report are available for review at the Department of Transportation, District 3 Sacramento office, 2389 Gateway Oaks Dr., Sacramento, CA.

3.4.1 Federal and State Regulations, Standards, & Policies

Federal and state regulations, standards and policies relating to traffic noise are discussed in detail in the Department's Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects (Protocol). Transportation projects affected by the Protocol are referred to as Type 1 projects. A Type 1 project is defined in 23 CFR 772 as highway construction on a new location, or the physical alteration of an existing highway that significantly changes either the horizontal or vertical alignment or increases the number of through traffic lanes and is either fully or partially federally funded. FHWA has clarified its interpretation of Type 1 projects by stating that such a project is one that has the potential to increase noise levels at adjacent receivers. Caltrans extends this definition to include state-funded highway projects. The proposed project evaluated in this report is considered a Type 1 project because it involves the construction of a highway on a new location.

National Environmental Policy Act

NEPA is a federal law that establishes environmental policy for the nation, provides an interdisciplinary framework for federal agencies to prevent environmental damage and contains "action-forcing" procedures to ensure that federal agency decision-makers take environmental factors into account. The FHWA regulations discussed below constitute the federal noise standard. Projects complying with this standard are also in compliance with the requirements stemming from NEPA.

Federal Highway Administration Regulations

Title 23, Part 772 of the Code of Federal Regulations (23 CFR 772) provides procedures for conducting highway-project noise studies and implementing noise abatement measures to help protect the public health and welfare, supply noise abatement criteria, and establish requirements for information to be given to local officials for use in planning and designing highways. Under this regulation, noise abatement must be considered for a Type 1 project if the project is predicted to result in a traffic noise impact. A traffic noise impact is considered to occur when the project results in a *substantial noise increase* or when the predicted noise levels *approach* or *exceed* the noise abatement criteria (NAC) specified in the regulation. 23 CFR 772 does not

specifically define what constitutes a “substantial increase” or the term “approach” and leaves interpretation of these terms to the individual states.

Noise abatement measures that are reasonable and feasible, and that are likely to be incorporated into the project, will be identified and incorporated into the project's plans and specifications. Table 3-14 summarizes the FHWA noise abatement criteria.

Table 3-14 FHWA Noise Abatement Criteria (NAC)

Activity Category	NAC, Hourly A-weighted Noise Level, dBA Leq(h)	Description of Activities
A	57 Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 Exterior	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 Exterior	Developed lands, properties, or activities not included in Categories A or B above
D	--	Undeveloped lands.
E	52 Interior	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

For any soundwalls to be considered reasonable from a cost perspective, the total estimated cost of the wall must be at or below the total allowance calculated for each wall. The reasonable base cost allowance per benefited residence is \$17,000. The cost calculations of the soundwall should include all items appropriate and necessary for the construction of the soundwall, such as traffic control, drainage, and retaining walls.

A minimum of 5 dB of noise reduction must be achieved at impacted receivers for proposed noise abatement to be considered feasible. Other factors may also restrict feasibility, including topography, access requirements for driveways or ramps, presence of local cross streets, other noise sources in the area, and safety considerations.

California Environmental Quality Act

CEQA is the foundation of environmental law and policy in California. CEQA's main objectives are to disclose to decision makers and the public the significant environmental effects of proposed activities and the ways to avoid or reduce those effects by requiring implementation of feasible alternatives or mitigation measures. Under CEQA, a substantial noise increase may result in a significant adverse environmental effect and, if so, must be mitigated or identified as a noise impact for which it is likely that only partial abatement measures (or none) are available. Specific economic, social, environmental, legal and technological conditions may make additional noise attenuation measures infeasible.

California Streets and Highways Code, Section 216

Section 216 of the California Streets and Highways code relates to the noise level produced by the traffic on, or by the construction of, a state freeway measured in the classrooms, libraries, multipurpose rooms and spaces used for a public or private elementary or secondary school. The code states that if the interior noise level produced in any of these locations by freeway traffic, or the construction of a freeway, exceeds 52 dBA Leq, the department shall undertake a noise abatement program to reduce the freeway traffic noise level to 52 dBA Leq or less by measures such as installing acoustical materials, eliminating windows, installing air conditioning and constructing sound baffle structures.

Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects

The Protocol (California Department of Transportation 1998a) specifies the policies, procedures, and practices for use by agencies that sponsor new construction or reconstruction projects. Noise abatement criteria specified in this document are the same as those specified in 23 CFR 772. The document defines a noise increase as substantial when the predicted noise levels with project implementation exceed existing noise levels by 12 dBA Leq(h). The protocol also states that a sound level is considered to approach an NAC level when the sound level is within 1 dB of the NAC identified in 23 CFR 772. For example, a sound level of 66 dBA is considered to approach the NAC of 67 dBA, whereas 65 dBA is not.

3.4.2 FIELD MEASUREMENTS

Ambient noise measurements were conducted to provide an understanding of the existing noise levels at the sensitive receptor locations. These noise levels will be used as a reference noise level to assess the noise impact to the residential area adjacent to the project site. Thirty-one sites were selected for monitoring to represent existing sensitive receptor locations. The measurement sites were selected when one or many residences were either within or close to the project boundaries. Figure 3-12 illustrates the 31 measurement locations and Table 3-16 summarizes the receptors. Ambient noise levels are listed in Table 3-15.

Table 3-15 Noise Level Measurements ¹ on October 5th and 6th 1999

Noise Level Location	Existing Noise (Monitored) Leq dBA	*A5C1	*AAC2	*D1	*D13
NR-1	49.1	60.6	60.5	56.8	56.8
NR-2	45.6	60.6	62.6	57.3	57.3
NR-3	54	55.2	55.2	52.9	55.0
NR-4	45.6	53.4	55.5	60.5	60.5
NR-5	51.3	57.8	64.6	63.1	63.1
NR-6	49.6	50.3	50.7	56.6	56.6
NR-7	38.1	58.2	51.2	55.2	57.6
NR-8	48.1	62.0	59.1	N/A	N/A
NR-9	36.4	53.0	52.4	N/A	N/A
NR-10a	54.4	64.3	63.6	N/A	N/A
NR-10b	52.7	63.8	63.2	N/A	N/A
NR-11	36.6	N/A	N/A	54.7	51.6
NR-12	46	N/A	N/A	60.5	56.2
NR-13	43.3	N/A	N/A	68.2	57.9
NR-14	43.4	N/A	53.0	68.6	60.1
NR-15	45.6	62.4	60.5	N/A	53.1
NR-16a	47.7	65.9	60.7	N/A	N/A
NR-16b	47.9	66.2	60.1	N/A	N/A
NR-17 ⁵ (8)	48.1	59.6	61.3	58.6	58.1
NR-18 ⁵ (10a)	54.4	70.4	70.0	65.7	69.5
NR-19 ⁵ (10a)	54.4	66.6	65.9	73.7	68.0
NR-20 ⁵ (14)	43.4	70.4	70.3	59.1	63.2
NR-21 ⁵ (15)	45.6	73.9	69.6	57.0	55.6
NR-22 ⁵ (16b)	47.9	72.5	66.4	N/A	N/A
NR-23 ⁵ (10b)	52.7	72.2	65.2	N/A	N/A
NR-24 ⁵ (8)	48.1	65.0	63.0	N/A	N/A
NR-25 ⁵ (6)	49.6	63.4	62.2	N/A	N/A
NR-26 ⁵ (14)	43.4	N/A	N/A	N/A	N/A
NR-27 ⁵ (14)	43.4	N/A	N/A	60.2	73.6
NR-28 ⁵ (14)	43.4	N/A	N/A	59.7	65.9
NR-29 ⁵ (14)	43.4	71.0	69.6	67.9	65.8
NR-30 ⁵ (14)	43.4	70.7	68.7	69.1	67.8
NR-31 ⁵ (15)	45.6	68.6	64.6	N/A	N/A

¹ The L_{eq} represents the equivalent continuous sound level and is the numeric value of a constant level that, over the given period of time, transmits the same amount of acoustic energy as the actual time varying sound level. The L_{min} and L_{max} represent the minimum and maximum noise levels obtained over a period of one second.

*Modeled

The ambient noise was partly due to either remote or sparse traffic on the existing SR 65, Dowd Road, Riosa Road, Wise Road, Nicolaus Road, Moore Road and Lakeside Drive. Other sources of noise were birds, barking dogs, hens, water flow, wind in branches, remote aircraft and minor carpentry work. Noise levels remain below the allowable noise exposure required by Placer County.

The measured L_{eq} shown in Table 3-15 is documented as existing ambient noise level. The modeled noise is the noise contribution of the new Lincoln bypass traffic to each receptor location. The modeled future traffic noise was then compared to the measured existing ambient noise. Noise impacts are addressed in Chapter 4, Environmental Consequences.

Table 3-16 Summary of Receptors

Noise Level Location	Location Description	Type of Development	No. of Residences	Status of Development
NR-1	6355 North Route 65	Residential	1	Existing
NR-2	100m north of Riosa Road	Residential	9	Existing
NR-3	100 feet from Existing Route 65	Residential	1	Existing
NR-4	4710 North Dowd Road	Residential	1	Existing
NR-5	4221 North Dowd Road	Residential	2	Existing
NR-6	700 feet from Existing Route 65	Residential	1	Existing
NR-7	2780 Dowd Road	Residential	1	Existing
NR-8	2000 feet from Existing SR 65, 1000 feet from C1 and C2 Alignments	Residential	4	Existing
NR-9	200m south of Wise Road	Residential	1	Existing
NR-10a	Along Wise Road	Residential	2	Existing
NR-10b	Along Wise Road	Residential	4	Existing
NR-11	Along Airport Road	Residential	6	Existing
NR-12	Along Nicolaus Road	Residential	1	Existing
NR-13	On Rockwell Lane	Residential	28	Existing
NR-14	Along Moore Road	Residential	1	Existing
NR-15	400 feet east of C1 and C2 Alignments	Residential	1	Existing
NR-16a	North end of El Camino Verde Dr.	Residential	17	Existing
NR-16b	1245 Cobblestone Dr	Residential	12	Existing
NR-17	2000 feet from Route 65	Residential	1	Existing
NR-18	Lincoln Crossing	Residential	60	Planned, Programmed, Approved
NR-19	Lincoln Crossing	Residential, Commercial	54	Planned, Programmed, Approved
NR-20	Lincoln Crossing	Residential, School, Park	20	Planned, Programmed, Approved
NR-21	50 feet from Existing SR 65	Residential	54	Existing
NR-22	50 feet from Existing SR 65, south of Nicolaus Rd.	Residential	6	Under Construction
NR-23	50 feet south of Nicolaus Road	Residential	28	Under Construction
NR-24	50 feet from C1 Alignment	Residential	1	Existing

Noise Level Location	Location Description	Type of Development	No. of Residences	Status of Development
NR-25	50 feet from Existing Route 65	Residential	1	Existing
NR-26	NW corner of Route 65/Ferrari Ranch Blvd	Residential	0	Planned, Programmed, Approved
NR-27	100 feet North of D13 Alignment	Residential	1	Existing
NR-28	100 feet North of D13 Alignment	Residential	1	Existing
NR-29	3-D Development	Residential	23	Planned, Program, Approved (Fall 2001)
NR-30	3-D Development	Residential	40	Planned, Program, Approved (Fall 2001)
NR-31	Lincoln West Development	Residential	25	Planned, Programmed, Approved

3.5 WATER QUALITY

The Water Quality Assessment examines the receiving waters associated with each of the alternatives for the project and the potential impacts linked to the construction and maintenance of each alternative. The location of these waters is shown in Figure 3-13. Following is a summary of the Water Quality Assessment, completed in February 1999. The entire document may be reviewed at the Department's District 3 office, 2800 Gateway Oaks Dr., Sacramento, CA.

The City of Lincoln is located between Auburn Ravine and Markham Ravine, both tributaries to the Sacramento River watershed. The receiving waters within the proposed project area include Auburn Ravine, Markham Ravine, Coon Creek, an unnamed tributary to Orchard Creek (all tributaries to the Sacramento River), Ingram Slough (a tributary to Orchard Creek), Yankee Sough (a tributary to the Bear River, which flows into the Sacramento River), and an aqueduct that supplies water for agricultural use. Alternatives AAC2 and A5C1 will cross over Orchard Creek, Ingram Slough, Auburn Ravine and Markham Ravine. Alternatives D1 and D13 also cross an aqueduct operated by the South Sutter Water District. The aqueduct supplies water for agricultural use.

3.5.1 Surface Water Resources

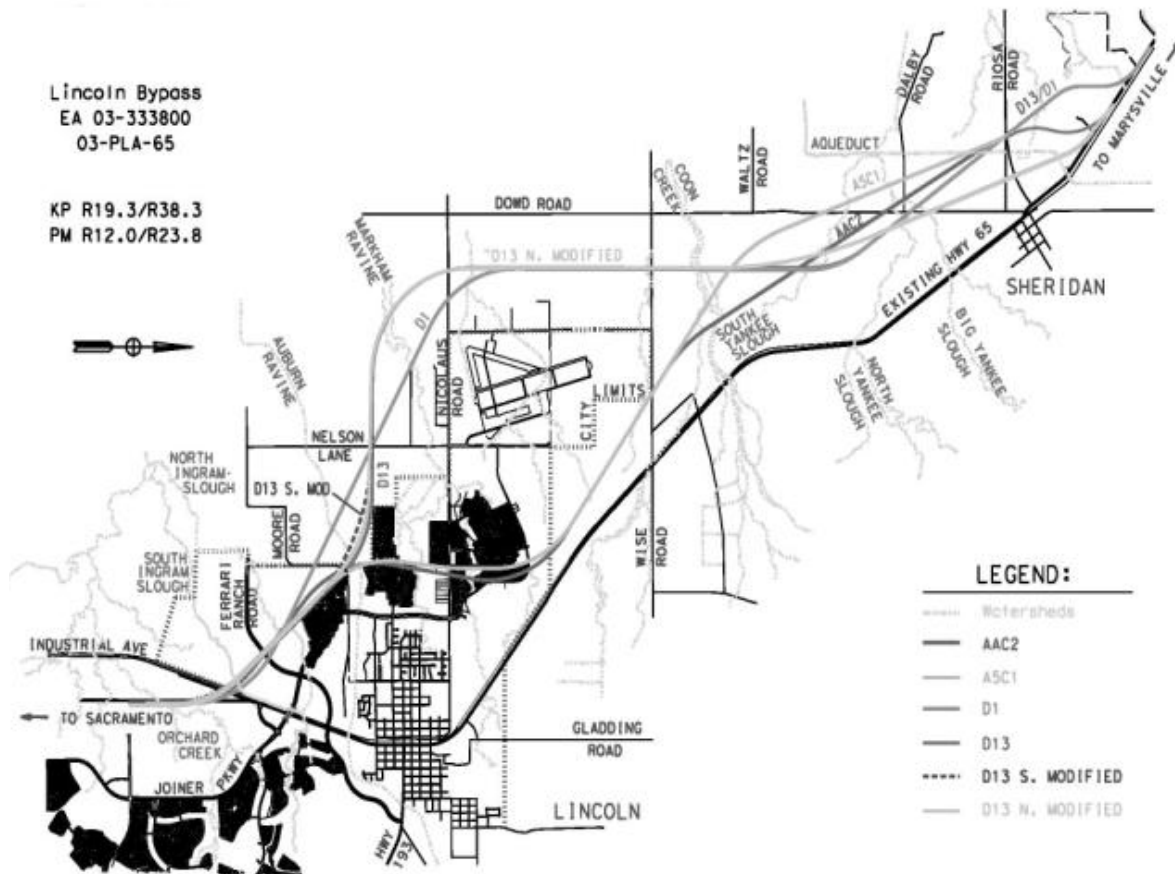
Vernal Pools

Several areas within the project are relatively flat and water collects in vernal pools during the wet part of the year. The pools dry during the spring and summer months unless agricultural watering is sufficient to keep the pools wet. During very wet periods, the pools may overflow and drain into the surrounding waterways. All alternatives will affect vernal pools as discussed in the Natural Resources section under "Wetlands."

Streams, Creeks and Sloughs

Orchard Creek originates just east of the project area, flows westerly across the project area and into Auburn Ravine. Caperton Canal brings some irrigation water to Orchard Creek keeping the flows during a portion of the year higher than the natural flow of the creek.

Ingram Slough, which is channeled in the project area, is one of the tributaries to Orchard Creek. The proposed Lincoln Crossing development will divide Ingram Slough into two waterways at the west side of SR 65 to a point west of the proposed bypass. A retention pond is also planned along the northern portion of the slough just west of the proposed bypass (EIP Associates 1992a)

Figure 3-13 Watersheds in the Lincoln Project Area

Auburn Ravine originates in the foothills east of the project area and flows westerly across the project area. It drains into the Cross Canal and then into the Sacramento River. It meanders through the project area and has a high density of trees lining it.

Currently, Auburn Ravine receives water from the Wise Powerhouse, the City of Auburn Wastewater Treatment Plant and from storm water runoff. Nevada Irrigation District (NID), Placer County Water Agency and the South Sutter Water District all use Auburn Ravine for transmitting water to agricultural users. During the spring and summer months, April through September, agricultural water is added into the flow of Auburn Ravine. Flows in Auburn Ravine will increase when the City of Auburn expands their wastewater treatment plant capacity from 1.67 million gallons per day (MGD) to 2.5 MGD (Jones & Stokes, 1996).

Stream flow is the lowest in Auburn Ravine between October and December when irrigation is not needed and demands for hydropower are low. This varies from a natural flow that would be lowest during the summer months: June, July, August and September. Flow data has been recorded by the NID where SR 65 crosses Auburn Ravine.

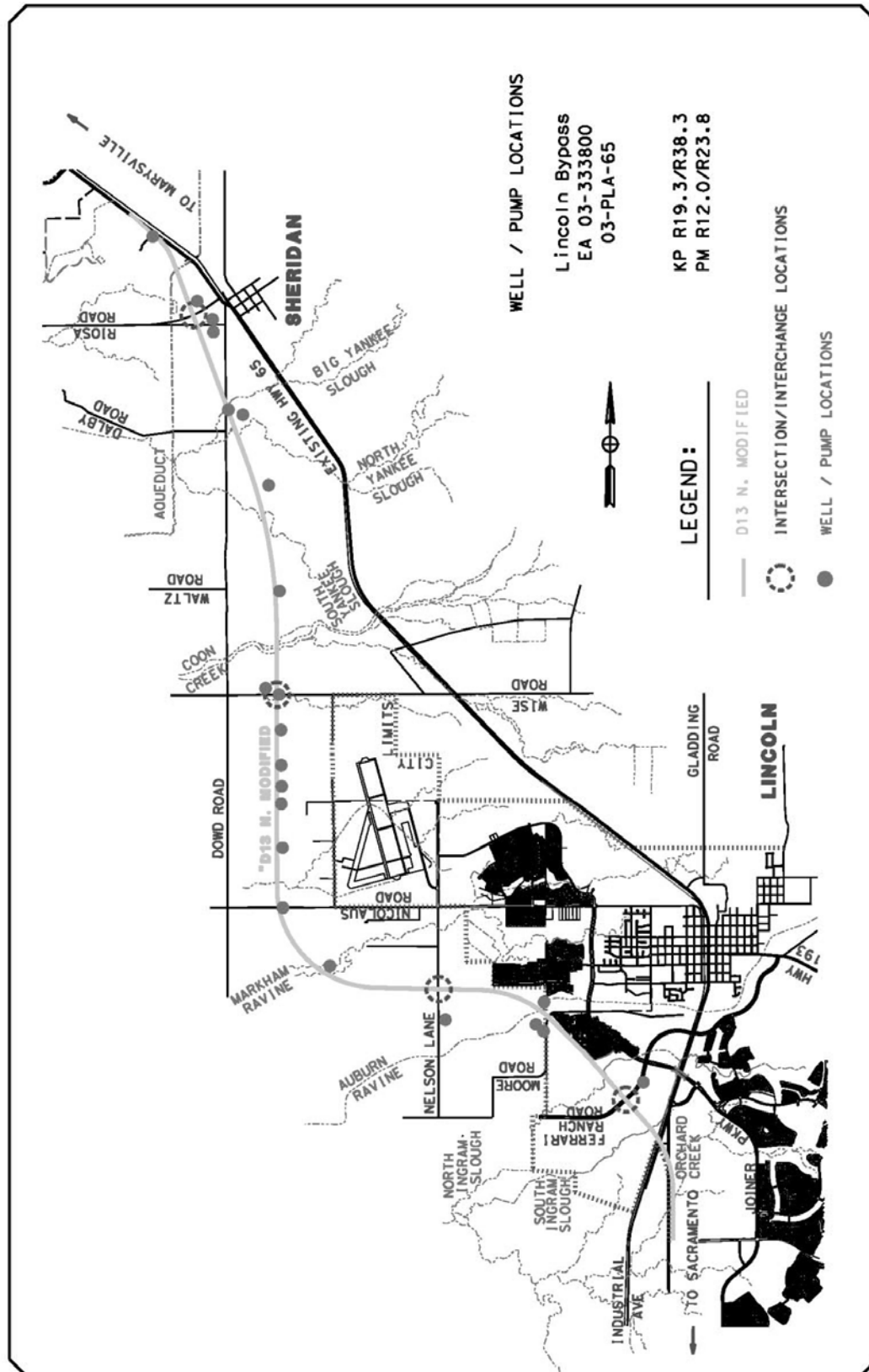
Markham Ravine originates in the rolling hills to the east of the project area. Markham Ravine is a narrow watercourse that meanders through the project area. Some eroding hillsides along the creek suggest greatly increased flows during the winter months. Markham Ravine also carries irrigation water, making flows higher than normal at some times of the year.

Coon Creek originates in the Sierra foothills, flowing westerly across the project area, draining into the Cross Canal and then into the Sacramento River. The creek is heavily wooded in some areas and only sporadic trees line the creek in other areas. Water is supplied to Coon Creek by canals and water is taken from Coon Creek by other canals. It is difficult to know how closely the current flows resemble natural flows.

Yankee Slough roughly parallels the Bear River, originating in the rolling hills east of the project. Yankee Slough flows into the Bear River and then to the Sacramento River. The slough does not have trees along its banks. Some of the water flowing in Yankee Slough comes from the Camp Far West canal, affecting seasonal flows.

Orchard Creek, Auburn Ravine, Markham Ravine, Coon Creek and Yankee Slough all receive water from an irrigation canal and/or provide water for irrigation. Consequently, flows no longer conform to natural flows. The watersheds for each of these creeks are relatively small, Coon Creek being the largest. Due to the seasonal nature of precipitation, flow fluctuates significantly from the high flow periods (October through May) to the dry summer months.

Figure 3-14 Location of Wells in Lincoln Area



3.5.2 Groundwater Hydrology

Available information indicates that groundwater elevation within the City of Lincoln is declining. A study conducted for the Coon Creek/Auburn Ravine watershed show that the average depth to groundwater has increased dramatically from only 7 m (22.9 ft) in 1929, to more than 18 m (59 ft) in 1967, due to over drafting for agricultural irrigation purposes. Present data indicates that groundwater levels have continued to drop at a rate of approximately 0.3 m (one foot) per year since 1967, or about 9 m (29.5 ft) (SACOG 1988b). Some agricultural wells may be affected by the proposed project. A map of wells in the proposed project impact area is shown in Figure 3-14.

3.5.3 Municipal Water Supply

Municipal water for the City of Lincoln is supplied through a long-term contract with the Placer County Water Agency (PCWA). Lincoln purchases treated water wholesale from PCWA and distributes the water through its own system. PCWA receives the water from Lake Spaulding and treats the water at PCWA's Sunset Treatment Plant. The plant has a capacity of 5.0 million gallons per day, and supplies water to both the City of Lincoln and the Sunset Industrial Park south of the city. In addition, the city has developed two wells east of the Lincoln Municipal Airport and expects to develop more wells as the demand increases (SACOG 1998a).

3.5.4 Beneficial Uses of the Water Resources

Beneficial uses are critical to water quality management in California. State law defines beneficial uses of California's waters that may be protected against quality degradation to include (but not limited to) "...domestic, municipal, agricultural and industrial supply, power generation, recreation, aesthetic enjoyment, navigation and preservation and enhancement of fish, wildlife and other aquatic resources or preserves" (Water Code Section 13050(f)). Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning (Regional Water Quality Control Board Central Valley Region 1998).

The beneficial uses, and abbreviations, listed below are the standard Basin Plan designations (RWQCBCVR 1998).

Municipal and Domestic Supply (MUN) - Includes uses of water for community, military, or individual water supply systems including, but not limited to, drinking water supply.

Agricultural Supply (AGR) - Includes uses of water for farming, horticulture, or ranching including, but not limited to, irrigation, stock watering, or support of vegetation for range grazing.

Industrial Service Supply (IND) - Includes uses of water for industrial activities that do not depend primarily on water quality including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, or oil well re-pressurization.

Industrial Process Supply (PRO) - Uses of water for industrial activities that depends primarily on water quality.

Groundwater Recharge (GWR) - Includes uses of water for natural or artificial recharge of groundwater for purposes of future extraction, maintenance of water quality, or halting of saltwater intrusion into freshwater aquifers.

Freshwater Replenishment (FRSH) - Includes uses of water for natural or artificial maintenance of surface water quantity or quality (e.g., salinity).

Navigation (NAV) - Uses of water for shipping, travel, or other transportation by private, military, or commercial vessels.

Hydropower Generation (POW) - Uses of water for hydropower generation.

Water Contact Recreation (REC-1) - Includes uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and SCUBA diving, surfing, white water activities, fishing, or use of natural hot springs.

Non-Contact Water Recreation (REC-2) - Includes the uses of water for recreational activities involving proximity to water, but not normally involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tide pool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.

Commercial and Sport Fishing (COMM) - Uses of water for commercial or recreational collection of fish, shellfish, or other organisms including, but not limited to, uses involving organisms intended for human consumption or bait purposes.

Aquaculture (AQUA) - Includes the uses of water for aquaculture or mariculture operations including, but not limited to, propagation, cultivation, maintenance, or harvesting of aquatic plants and animals for human consumption or bait purposes.

Warm Freshwater Habitat (WARM) - Includes uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish or wildlife, including invertebrates.

Cold Freshwater Habitat (COLD) - Includes uses of water that support cold water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish or wildlife, including invertebrates.

Estuarine Habitat (EST) - Uses of water that support estuarine ecosystems including, but not limited to, preservation or enhancement of estuarine habitats, vegetation, fish, shellfish, or wildlife (e.g., estuarine mammals, waterfowl, shorebirds).

Wildlife Habitat (WILD) - Includes uses of water that support terrestrial ecosystems including, but not limited to, preservation and enhancement of terrestrial habitats, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.

Preservation of Biological Habitats of Special Significance (BIOL) - Uses of water that support designated areas or habitats, such as established refuges, parks, sanctuaries, ecological reserves, or Areas of Special Biological Significance (ASBS), where the preservation or enhancement of natural resources requires special protection.

Rare, Threatened, or Endangered Species (RARE) - Includes uses of water that support habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under State or Federal law as rare, threatened or endangered.

Migration of Aquatic Organisms (MIGR) - Uses of water that support habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under State or Federal law as rare, threatened or endangered.

Spawning, Reproduction, and/or Early Development (SPWN) – Uses of water that support high quality aquatic habitats suitable for reproduction and early development of fish.

Shellfish Harvesting (SHELL) – Uses of water that support habitats suitable for the collection of filter feeding shellfish (e.g. clam, oysters, and mussels) for human consumption, commercial or sports purposes.

The beneficial uses of the Sacramento and Bear Rivers are listed in Table 3-17.

Table 3-17 Beneficial Uses

Surface Water Bodies	MUN	AGRI	AGRS	POW	REC-1	REC-2	WARM	COLD	MIGR(W)	MIGR(C)	SPWN(W)	SPWN(C)	WILD
Sacramento River Colusa Basin to I Street Bridge	E	E	~	E	E	E	E	E	E	E	E	E	E
Bear River	E	E	E	E	E	E	E	E	P	P	P	P	E

MUN = Municipal

POW = Industry Power

WARM = Freshwater Habitat Warm

MIGR(C) = Migration Cold

WILD = Wildlife Habitat

Source: RWQBCVVR, 1999

AGR I = Agricultural Irrigation

REC-1 = Recreation Contact

COLD = Freshwater Habitat Cold

SPWN(W) = Spawning Warm

E = Existing Beneficial Uses

AGR S = Ag. Stock Watering

REC-2 = Other Non-Contact

MIGR(W) = Migration Warm

SPWN(C) = Spawning Cold

P = Potential Beneficial Uses

3.5.5 Beneficial Uses for Groundwater

Unless otherwise designated by the Regional Water Board, all ground waters in the Region are considered as suitable or potentially suitable, at a minimum, for municipal and domestic water supply (MUN), agricultural supply (AGR), industrial service supply (IND) and industrial process supply (PRO) (RWQBCVVR, 1998).

3.5.6 Water Quality Objectives

The Basin Plan lists water quality objectives for a number of constituents. General water quality objectives for surface waters are presented in Table 3-18. Objectives for inorganic and organic chemicals are listed Table 3-19.

Table 3-18 General Water Quality Objectives for Surface Waters

Constituent	Description
Bacterio-logical	In no case shall coliform concentrations in waters of the Sacramento River Basin or the Bear River exceed the following: In waters designated for contact recreation (REC-1), the median fecal coliform concentration based on a minimum of not less than five samples for any 30 day period shall not exceed 200/100ml, not shall more than ten percent of total samples during any 30 day period exceed 400/1000ml.
Chemical Constituents	Waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the limits specified in the California Code of Regulation, Title 22 and listed in the Basin Plan. Waters designated for use as agricultural supply (AGR) shall not contain concentrations of chemical constituents in amounts that adversely affect such beneficial use. Numerical water quality objectives for individual waters are listed in the Basin Plan.

Constituent	Description
Dissolved Oxygen	<p>Dissolved oxygen concentrations shall conform to those limits listed in the Basin Plan. The monthly median of the mean daily dissolved oxygen (D) concentration shall not fall below 85 % of saturation in the main water mass, and 95 percentile concentration shall not fall below 75 % of saturation. For waters not listed and where dissolved oxygen objectives are not prescribed, the dissolved oxygen concentrations shall not be reduced below the following minimum levels at any time:</p> <p>Waters designated COLD 7.0 ml/L</p> <p>Waters designated SPWN 7.0 ml/L</p> <p>Waters designated WARM 5.0 ml/L</p>
Floating Material	Water shall not contain floating material in amounts that cause nuisance or adversely affect beneficial uses.
Oil and Grease	Waters shall not contain oils, waxes, or other materials in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water or otherwise adversely affect beneficial uses.
Pesticides	<p>No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses. Discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses. Total identifiable persistent chlorinated hydrocarbon pesticides shall not be present in the water column at concentrations detectable within the accuracy of analytical methods approved by the Environmental Protection Agency or the Executive Officer. Pesticide concentrations shall not exceed those allowable by applicable anti-degradation policies (see State Water Resources Control Board Resolution NO. 68-16 AND 40 C.F.R. § 131.12. Pesticide concentrations shall not exceed the lowest levels technically and economically achievable. Waters designated for use as domestic or municipal supply (MUN) shall not contain concentration of pesticides in excess of the Maximum Contaminant Levels set forth in California Code of Regulations, Title 22, Division 4, Chapter 15.</p>
pH	The pH shall not be depressed below 6.5 nor raised above 8.5
Radioactivity	Radionuclides shall not be present in concentrations that are harmful to human, plant, animal, or aquatic life nor result in the accumulation of radionuclides in the food web to the extent that presents a hazard to human, plant, animal, or aquatic life.
Sediment	The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.
Settleable Materials	Waters shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.
Suspended Solids	Waters shall not contain suspended material in concentration that cause nuisance or adversely affect beneficial uses.
Taste and Odor	Water shall not contain taste and odor producing substances in concentration that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance or otherwise adversely affect beneficial uses.
Temperature	The natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Water Board that such alteration in temperature does not adversely affect beneficial uses.

Constituent	Description
Toxicity	All waters must be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal or aquatic life. This objective applies regardless of whether the toxicity is caused by a single substance or the interactive effect of multiple substances. Analysis of indicator organisms, species diversity, population density, growth anomalies and biotoxicity tests of appropriate duration or other methods as specified by the Regional Water Board will determine compliance with this objective.
Turbidity	<p>Waters shall be free of changes in turbidity that cause nuisances or adversely affect beneficial uses. Increases in turbidity attributable to controllable water quality factors shall not exceed the following limits:</p> <p>Where natural turbidity is between 0 and 5 Nephelometric Turbidity Units (NTUs), increases shall not exceed 1 NTU.</p> <p>Where natural turbidity is between 5 and 50 NTUs, increases shall not exceed 20%. Where natural turbidity is between 50 and 100 NTUs, increases shall not exceed 10%. Where natural turbidity is greater than 100 NTUs, increases shall not exceed 10%. In determining compliance with the above limits, appropriate averaging periods may be applied that beneficial uses will be fully protected.</p>

Source: Regional Water Quality Control Board, Central Valley Region Basin Plan, 1998

Table 3-19 Water Quality Objectives for Inorganic and Organic Chemicals for the Bear River Hydrologic Unit

Chemical	Maximum contamination Level	Detail	Chemical	Maximum contamination Level	Detail
1,1,1-Trichloroethane	0.2 mg/L	NA	Bentazon	0.018 mg/L	NA
1,1,2,2-Tetrachloroethane	0.001 mg/L	NA	Benzene	0.001 mg/L	NA
1,1,2-Trichloro-1,2,2-Trifluoroet	1.2 mg/L	NA	Benzo(a)pyrene	0.0002 mg/L	NA
1,1,2-Trichloroethane	0.005 mg/L	NA	Beryllium	0.004 mg/L	NA
1,1-Dichloroethane	0.005 mg/L	NA	Cadmium	0.0005 mg/L	NA
1,1-Dechloroethylene	0.006 mg/L	NA	Carbofuran	0.018 mg/L	NA
1,2,4-Trichlorobenzene	0.07 mg/L	NA	Carbon Tetrachloride		NA
1,2-Trichlorobenzene	0.6 mg/L	NA	Chlordane	0.0001 mg/L	NA
1,2-Dichloroethane	0.0005 mg/L	NA	Chromium	0.05 mg/L	NA
1,2-Dichloropropane	0.005 mg/L	NA	Cis-1,2-Dichloroethylene	0.006 mg/L	NA
1,3-Dichloropropene	0.0005 mg/L	NA	Copper	1.3 mg/L	NA
1,4-Dichlorobenzene	0.005 mg/L	NA	Cyanide 0.2	0.2 mg/L	NA
2,3,7,8-TCDD (Dioxin)	0.0000003 mg/L	NA	Dalapon	0.2 mg/L	NA
2,4,5-TP (Silvex)	0.05 mg/L	NA	Diphthalate (2-ethylhexyl)	0.004 mg/L	NA
2,4-D	0.07 mg/L	NA	Dibromochloropropane	0.0002 mg/L	NA
Alachlor	0.002 mg/L	NA	Dichloromethane	0.005 mg/L	NA
Aluminum	1 mg/L	NA	Dinoseb	0.007 mg/L	NA
Antimony	0.006 mg/L	NA	Diquat	0.02 mg/L	NA
Arsenic	0.005mg/L	NA	Endothall	0.1 mg/L	NA
Asbestos	7 MFL	NA	Endrin	0.002 mg/L	NA
Atrazine	0.003 mg/L	NA	Ethylbenzene	0.7 mg/L	NA
Barium	1 mg/L	NA	Ethylene Dibromide	0.00005mg/L	NA

Chemical	Maximum contamin- ation Level	Detail
Fluoride	2.4 mg/L	<53.7F
Fluoride	2.2 mg/L	53.8F- 58.3F
Fluoride	2 mg/L	58.4F- 63.8F
Fluoride	1.8 mg/L	63-9F- 70.6F
Fluoride	1.6 mg/L	70.7F- 79.2F
Fluoride	1.4 mg/L	79.3F- 90.5F
Glyphosate	0.7 mg/L	NA
Heptachlor	0.00001mg/L	NA
Heptachlor Epoxide	0.00001mg/L	NA
Hexachlorobenzene	0.001 mg/L	NA
Hexachlorocyclopent adiene	0.05 mg/L	NA
Lead	0.015 mg/L	NA
Lindane	0.0002 mg/L	NA
Mercury	0.002 mg/L	NA
Methoxychlor	0.04 mg/L	NA
Molinate	0.02 mg/L	NA
Monochlorobenzene	0.07 mg/L	NA
Nickel	0.1 mg/L	NA
Nitrate (as NO3)	45 mg/L	NA

Chemical	Maximum contamin- ation Level	Detail
Nitrate + Nitrate (sum as nitogen)	10 mg/L	NA
Nitrate (as nitrogen)	1 mg/L	NA
Oxamyl	0.2 mg/L	NA
PCBs	0.0005 mg/L	NA
Pentachlorophenol	0.001 mg/L	NA
Picloram	0.5 mg/L	NA
Selenium	0.05 mg/L	NA
Simazine	0.004 mg/L	NA
Styrene	0.1 mg/L	NA
Tetrachloroethylene	0.005 mg/L	NA
Thallium	0.002 mg/L	NA
Thiobencarb	0.07 mg/L	NA
Toluene	0.15 mg/L	NA
Toxaphene	0.003 mg/L	NA
trans-1,2- Dichloroethylene	0.01 mg/L	NA
Trichloroethylene	0.005mg/L	NA
Trichlorofluoro- methane	0.15 mg/L	NA
Vinyl Chloride	0.0005 mg/L	NA
Xylenes	1.75 mg/L	NA

Source: RWQCBCVR 1998

NA = Not Applicable

3.5.7 Existing Water Quality

The City of Auburn's Wastewater Treatment Plant (WWTP) had been operating under a cease-and-desist order since 1994 for discharging effluent that exceeded the WWTP's permit limitations into the Auburn Ravine. The WWTP was issued a new wastewater discharge permit on April 11, 2005. However, the WWTP is not able to meet the new discharge limits set by the RWQCB for discharging to the Auburn Ravine, and operates under a new cease and desist order. Recent water quality studies to assess the effects of the City of Auburn's WWTP discharge found that the effluent has little impact on ambient water quality in Auburn Ravine. Significant dilution and high capacity to assimilate organic matter are results of the high dissolved oxygen concentration maintained in the stream as it flows to Lincoln.

Water quality studies have been conducted on Auburn Ravine in conjunction with the City of Lincoln Wastewater Treatment and Reclamation Facility Draft Environmental Impact Report. Data collected between December 1998 through February 1999 at the Joiner Parkway Bridge in Lincoln showed that storm water runoff and higher flows

influence water quality. Although there was low biological oxygen demand, neutral pH, low hardness and dissolved oxygen (DO) typically above 7.0 mg/L, there was moderate turbidity that varied with stream flow conditions and rainfall. Data collected during the summer and fall 1995, shown in Table 3-20, reflect the influences of urban runoff, agricultural activities, septic tanks and other factors (Jones & Stokes, 1999).

Table 3-20 Concentrations of Conventional Constituents of Concern in Auburn Ravine

	BOD (mg/L)	NO³ (mg/L N)	NH³ (mg/L N)	TKN (mg/L N)	TP (mg/L P)	TURB (NTU)	FC (#/100 ml)	pH	Temp (°C)	DO (mg/L)
Samples Collected from Auburn Ravine 7/24/95										
Above town	<3	0.13	<0.05	<0.5	<0.5	3.9	50	6.8-6.9	14.7-16.9	10.0-10.4
mid reach	<3	0.12	<0.05	<0.5	0.6	6.6	--	6.7-7.6	15.9-17.3	9.6-9.8
Lower reach	<3	<0.11	0.052	0.6	0.9	4.6	500	6.0-7.4	20.4-22.7	8.0-8.3
Samples Collected from Auburn Ravine 9/14/95										
Above town	<3	0.71	0.064	<0.5	0.04	1.8	50	--	--	--
mid reach	<3	0.93	0.053	<0.5	0.05	2.0	--	--	--	--
Lower reach	<3	0.58	0.064	<0.5	0.05	3.4	500	--	--	--
Samples Collected from Auburn Ravine 10/20/95										
Above town	<3	--	<0.05	<0.5	0.05	0.72	30	6.9-7.2	15.5-15.7	7.2-9.3
mid reach	<3	--	<0.05	<0.5	0.08	1.8	--	6.8-7.4	15.5-17.0	7.6-8.5
Lower reach	<3	--	<0.05	<0.5	0.09	4.7	90	7.2	17.0-17.0	6.2-7.0

BOD = biological oxygen demand

DO = dissolved oxygen

NH³ = ammonia (un-ionized)

NO³ = nitrates

FC = fecal coliform

Temp. = Temperature

TKN = total Kjeldahl nitrogen

TP = total Phosphorous

Turb = Turbidity

The city has recently undertaken an intensive sampling effort to gain a better understanding of the variability of the trace metal priority pollutants in Auburn Ravine (at Joiner Parkway Bridge). Several trace metals (i.e., cadmium, copper, lead, nickel, and zinc) were present during the various sampling periods at levels that exceed proposed water quality criteria. The May 1998 and January-February 1999 samplings were conducted immediately following storm events and the levels of pollutants in these samples may be characteristic of transient storm-related inputs of urban pollutants. More recent data using clean techniques show much lower values for dissolved metals, with none of the values exceeding proposed regulatory criteria (Jones & Stokes, 1999).

Sources of pollutants in the Auburn Ravine watershed include both point sources of pollutants (e.g., the City of Auburn's WWTP) and non-point sources of pollutants (e.g., agricultural and urban runoff). The City of Auburn's wastewater discharge constitutes the largest single known source of wastewater effluent entering directly into Auburn Ravine. The percentage contribution from Auburn's WWTP is lower in the dry season as a result of larger releases of water into the channel by PG&E and PCWA. In the dry season, Auburn's effluent has typically accounted for 6.8% of the flow in October and 1.8% in July (Jones & Stokes, 1999).

In the Sacramento Valley, there is a natural weather pattern of a long dry period from May to October. During this seasonal dry period, pollutants contributed by vehicle exhaust, vehicle and tire wear, crankcase drippings, spills and atmospheric fallout accumulate within a watershed. Precipitation during the early portion of the wet season (November to April) displaces these pollutants into the storm water runoff, resulting in high pollution concentrations in the initial wet weather runoff. A study conducted by the RWQCB in Sacramento, California (Larry Walker & Associates, 1990) revealed that during the rainy season, the first flush of heavy metals and hydrocarbons occurred during the first five inches of seasonal rainfall. Trace metal and hydrocarbon concentrations then remained largely static in subsequent storm events. Some sources of dry weather runoff constituent pollutants included commercial and domestic irrigation, general wash off, groundwater infiltration and illegal discharges (EIP Associates 1992a).

The State of California, in accordance with Section 303(d) of the Clean Water Act, has submitted to the State Water Resources Control Board a list of impaired waters. The 2002 list mentions the Lower Bear as having Diazinon as a pollutant, likely from agricultural sources with a medium Total Maximum Daily Loads (TMDL) priority. The Sacramento River from Red Bluff to Knights Landing has unknown toxicity from an unknown source with a low TMDL priority. There was no specific information on the Upper Coon or Upper Auburn watersheds.

For the section of the Sacramento watershed where the project is located, parameters of concern include unknown toxicity, mercury and Diazinon. The pollution sources were listed as agriculture and resource extraction.

3.6 FLOODPLAIN

Caltrans conducted a Floodplain Hydraulic Study (FHS) on the project area. The FHS was updated in December 1999. This document is available for review at 2389 Gateway Oaks Dr., Sacramento, CA 95833. The FHS concluded that the Lincoln Bypass floodplain encroachments are unavoidable due to the preferred alignment's north south

orientation crossing the east/west drainage patterns of the area. The existing SR65 passes through areas subject to 100-year floods and encroaches upon the 100-year floodplain at Auburn Ravine, Markham Ravine and Coon Creek. The Preferred Alignment crosses areas subject to 100-year floods at Auburn Ravine, Markham Ravine, Coon Creek and North Yankee Slough. Waterway crossings that are not within the floodplain boundaries include Ingram Slough, Airport Creek, South Yankee Slough, Big Yankee Slough and the South Sutter Water District Aqueduct. Ingram Slough has recently been divided into two reaches; these are North Ingram and South Ingram Slough. FEMA has mapped 100-year floodplains along most of the creeks in the project area. At the time of the study, the D13 North Modified alternative was not one of the alignments studied in the FHS, however, the D13 Alignment is very similar to D13 North Modified at the waterway crossings; therefore the information is applicable.

Caltrans conducted a Final Hydraulics Report (FHR) in September 2004. The FHR assists Caltrans in sizing the structures, determining scour elevations and identifying hydraulic problems that could impact the design and construction of the proposed bridges. The floodplains are shown in Figure 4-6 in Chapter 4. The flood plain widths and base-flood elevations at each of the proposed waterway crossings are shown in Table 3-21.

Table 3-21 Widths and Base Flood Elevations

WATERWAY	FLOODPLAIN WIDTH (FHS)	WATER SURFACE ELEVATION (FHR) 100-Year event
South Ingram Slough	N/A	40.1m
North Ingram Slough	N/A	41.1m
Auburn Ravine	305m (1000 ft)	39.9m
Markham Ravine	92m (300 ft)	32.34m
Airport Creek	N/A	31.7m
Coon Creek	1128m (3700 ft)	32.3m
South Yankee Slough	N/A	29.3m
North Yankee Slough	213m (700 ft)	28.2m
Yankee Slough (Big)	N/A	28.2m
SSWD Aqueduct	Not in floodplain	N/A

Source: Hydraulic Study Update

*Similar for D13 N. Mod

During times of high flows, water backs up along man made barriers such as the existing railroad and highway bridges on Auburn Ravine. The low area along the railroad tracks and SR 65 fills with water during wet winters. FEMA has mapped 100-year floodplains along all of the creeks in the project area (See Figure 4-6 in Chapter 4, for a map of floodplain encroachments.). The levee on the north side of Auburn Ravine, on the Scheiber Ranch, attests to the potential for flooding in the low sloping flat areas. In addition, the FEMA maps show SR 65 as a major impediment to the flow of water for

a 100-year flood event for Markham Ravine. Flooding may occur downstream in Sutter County during wet events (SACOG 1988b, FEMA maps).

Natural and beneficial floodplain values exist at Auburn Ravine and Coon Creek due to their perennial flow. These values are relatively diverse. The primary values that exist in the vicinity of the proposed project alternate alignments are as follows:

- Natural habitat for fish, wildlife, and native riparian vegetation
- Open space
- Recreation
- Ground water recharge
- Scenic beauty

These values also exist at Markham Ravine and Yankee Slough, but to a lesser degree due to the absence of significant surface flow during the summer and fall of most years.

3.7 NATURAL RESOURCES

A Natural Environment Study Report was completed for this project in August 2000. Copies of this report are available for review at the Department of Transportation, District 3 Sacramento office, 2389 Gateway Oaks Dr., Sacramento, CA.

3.7.1 Introduction

The Lincoln Bypass Study Area has been substantially altered during a long history of agricultural and industrial land use. Figure 3-15 outlines the Study Area. In 1998, about 9 % of the Study Area had been developed and about 43 % converted to some form of agricultural production (row crops, rice, orchards, etc.) Much of the drainage through the area have been channelized or otherwise altered. Levees have been constructed to contain floodwaters or to retain water for rice farming. Many drainages appear to be conveying supplemental irrigation water. Cattle grazing have also taken a toll on the natural environment in the Study Area.

More recently, residential development has accelerated in the project area, especially in the vicinity of Joiner Parkway. New housing is also under construction south of Nicolaus Road at the intersection of Lakeside Drive and north of Nicolaus Road to the east of Nelson Lane. Many areas now being developed as residential subdivisions were likely in some form of agricultural use previously.

3.7.2 Agency Coordination

This section summarizes the responsibilities of key agencies involved in the review of the Natural Environment Study Report (NESR) and related project documents for this project. Coordination with the agencies is also discussed. Copies of correspondence with the agencies are included in the Comments and Coordination Chapter, Chapter 7.

Environmental Protection Agency (EPA)

EPA has primary responsibility for administration of the Clean Water Act and oversight authority on 404 permitting issues. EPA's 404(b)(1) guidelines are the substantive criteria used by the Corps in evaluating discharges of dredged or fill material into waters of the United States. EPA is also a signatory agency to the 1993 NEPA/404 Integration Memorandum of Understanding (MOU).

EPA has been involved in the development of the draft Alternatives Analysis for the SR 65 Lincoln Bypass, and has concurred with the proposed project purpose and range of alternatives. The Alternatives Analysis identified the "Least Environmentally Damaging Practicable Alternative" (LEDPA). Written agreement that the preferred alternative is the LEDPA is required from USACE and EPA. The LEDPA concurrence was obtained from EPA on July 9, 2003.

EPA has reviewed the Draft Conceptual Mitigation and Monitoring Plan that was submitted in December 2004 and provided preliminary concurrence on December 12, 2004. The letter is included in Appendix E.

U.S. Army Corps of Engineers (USACE)

Under Section 404 of the Clean Water Act, the USACE regulates the discharge of dredged or fill material into waters of the U.S. A Section 404 permit from the USACE will be required for the project to authorize the discharge of dredged or fill material into vernal pools and other wetlands and regulated waters associated with roadway construction. The USACE is also a signatory agency to the NEPA/404 Integration MOU.

A wetland verification was completed for the project impacts, however, that verification expired in 1991. Caltrans met with the USACE and requested that the expired verification be adequate for use in comparing impacts until a preferred alternative is chosen. At that time, a new wetland delineation and verification would be performed. The USACE agreed to this approach. (Meeting with USACE on March 11, 1999). A new Wetland Delineation was submitted to the USACE in February 2004 and is awaiting final approval.

USACE concurred with the LEDPA on August 8, 2003 during the NEPA/404 process and has given concurrence on the Draft Habitat Mitigation and Monitoring Plan (HMMP) on December 27, 2004. (See Appendix E for copy of concurrences) Caltrans

submitted a revised Wetland Delineation to USACE in March 2004 for re-verification. The 404 permit was also submitted to USACE in March 2004 for review and comment. Caltrans will need to obtain concurrence on the final HMMP as well as a re-verification of the Wetland Delineation before USACE will issue a permit to Caltrans.

Regional Water Quality Control Board (RWQCB)

A Section 401 Water Quality Certification or Waiver from the RWQCB is required in conjunction with the Section 404 permitting process. A 401 certification or waiver will be required before the 404 permit is issued. Application to the RWQCB is generally made after the environmental document is complete.

U.S. Fish and Wildlife Service (FWS)

Under the Fish and Wildlife Coordination Act of 1958, Federal agencies are required to coordinate during project planning stages with FWS and with the State agency responsible for fish and wildlife resources on activities that modify any body of water. Under Section 7 of the Federal Endangered Species Act (FESA), Federal agencies are required to consult with FWS on any action that “may affect” a Federally listed threatened or endangered species or designated critical habitat. FWS is also a signatory agency to the NEPA/404 Integration MOU and has concurred with the proposed project purpose and range of alternatives evaluated for the project.

In February 2004, Caltrans began discussing the project and the Section 7 consultation with FWS. During the next several months Caltrans, FHWA and FWS worked towards satisfying the requirements of the Section 7 consultation process. FWS issued a Biological Opinion (BO) on February 2, 2005 (Appendix J). The BO outlines requirements to avoid jeopardizing the continued existence of those species that are impacted by the project.

California Department of Fish and Game (CDFG)

CDFG, through provisions of Sections 1602 of State of California Administrative Code, is empowered to issue agreements for any alteration of a river, stream or lake where fish or wildlife resources may adversely be affected. Streams (and rivers) are defined by the presence of a channel bed and banks, and at least an intermittent flow of water. CDFG regulates wetland areas only to the extent that those wetlands are part of a river, stream or lake as defined by CDFG.

Coordination with CDFG will be necessary under the Fish and Wildlife Coordination Act, as described above, and under the California Endangered Species Act for potential impacts to State listed species. In addition, a Section 1602 Streambed Alteration Agreement will be required from CDFG to authorize work in streams and other water bodies. CDFG will also be involved in the review of project environmental

documents and in the 404 permitting process as a reviewing agency on the USACE Public Notice.

National Oceanic and Atmospheric Administration (NOAA)

Under Section 7 of the Federal Endangered Species Act, Federal agencies are required to consult with NOAA Fisheries on any action that “may affect” a Federally listed threatened or endangered species or designated critical habitat for which NOAA has responsibility. For the Lincoln Bypass project, NOAA has responsibility for reviewing project effects to anadromous fish.

A “may affect, not likely to adversely effect” determination for the threatened Central Valley steelhead under Section 7 of the Endangered Species Act was made by Caltrans. In addition, Caltrans determined that the project would “not adversely affect” and Essential Fish Habitat pursuant to the provisions of the Magnuson-Stevens Fishery Conservation and Management Act (MSA). These determinations were submitted to NOAA Fisheries on May 10, 2004 and Caltrans received concurrence on May 19, 2004.

3.7.3 Fish and Wildlife

The plant communities in the Study Area provide habitat for a variety of fish and wildlife resources. The following sections describe the wildlife habitats and species expected to occur in these habitats. A complete list of fish and wildlife species observed in the project area can be found in Appendix F.

Aquatic Habitat

Aquatic habitats in the Study Area include open water associated with creeks, reservoirs and stock ponds, flooded rice fields, backwater sloughs, vernal pools/marshes and permanent/seasonal marsh and irrigation canals. The best-developed aquatic habitat in the Study Area is associated with the large marsh complexes at the west end of Markham Ravine and Bull Marsh, and along the primary drainages (Auburn Ravine, Markham Ravine, Coon Creek, Yankee Slough). The hydrology of most of the aquatic habitats in the Study Area is influenced to some degree by agricultural diversions, irrigation pumping, return flows, and wastewater discharges.

Vertebrate species observed, or expected to occur, in aquatic habitats in the Study Area include beaver, river otter, muskrat, northern pond turtle, common garter snake, Pacific tree frog and bullfrog. Aquatic habitats in the Study Area also support a resident warm water fishery including both introduced and native species. Based on sampling conducted by Beak in 1990, Auburn Ravine and Coon Creek are dominated by native fish species including Sacramento squawfish and Sacramento sucker. Green sunfish, carp and Pacific lamprey were also recorded. Markham Ravine, Ingram Slough and Yankee

Slough support a primarily introduced fishery including mosquito fish, green sunfish, carp and bigscale logperch.

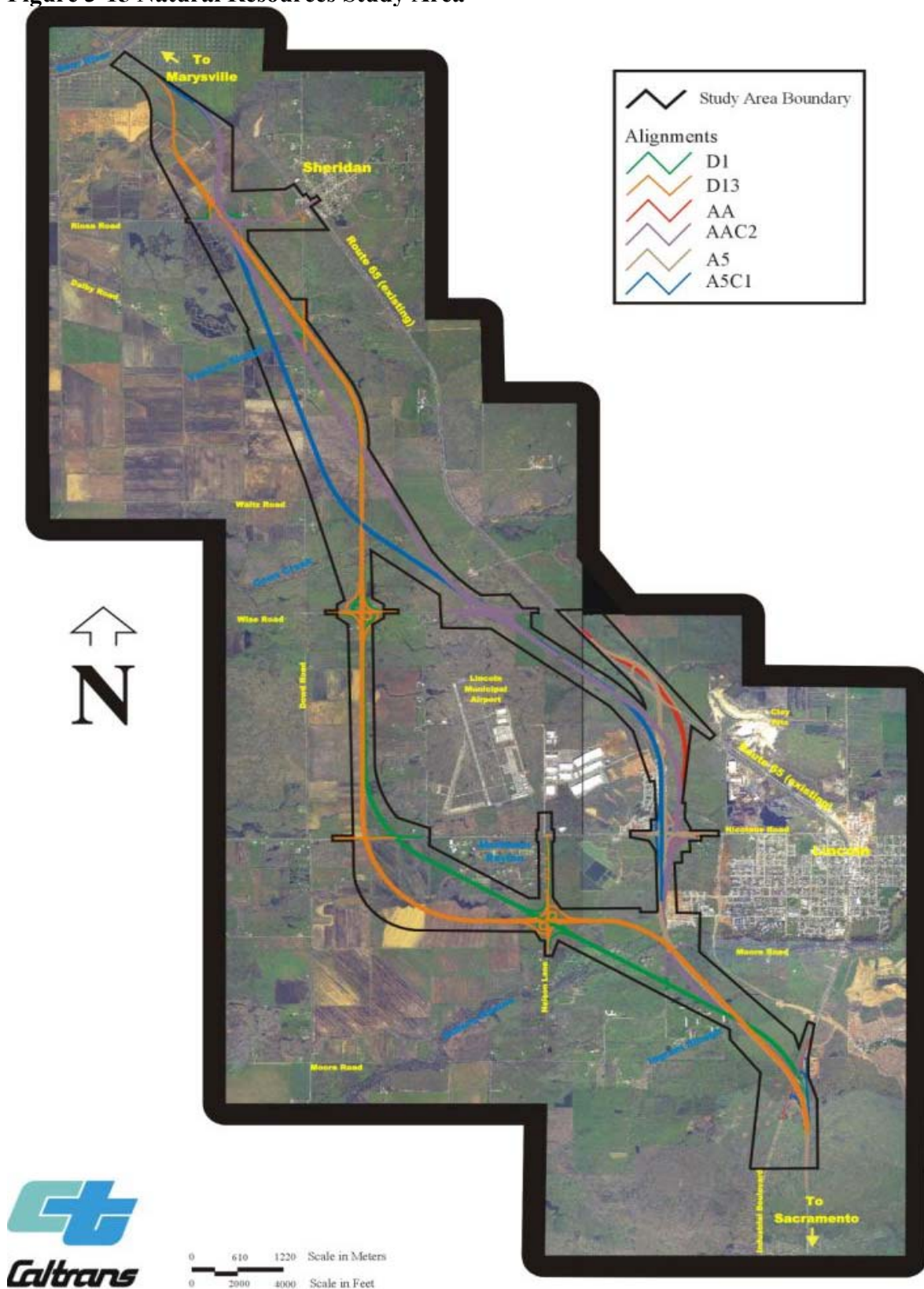
Freshwater marsh is important for many wildlife species, particularly waterfowl and shorebirds. Freshwater marsh and flooded rice fields in and near the Study Area provide habitat for thousands of migrating waterfowl during the winter. Biologists observed between 15,000 and 20,000 birds, primarily ducks, in these areas during the early March 2000 surveys. Marsh areas are also important in nutrient absorption functions that improve water quality.

Small numbers of chinook salmon were observed in Auburn Ravine, Coon Creek and Ingram Slough. Although believed to be stocked fish, it is possible that fall run chinook salmon and Central Valley steelhead migrate through the Study Area. The Study Area does not provide suitable spawning habitat (gravel beds) for these species.

Terrestrial Habitat

Terrestrial habitats in the Study Area include buildings and other structures, agricultural fields, rice fields, orchards, grasslands, oak woodlands and mixed riparian forest. Structures, buildings and landscaped areas provide low-quality wildlife habitat, primarily exploited by those species adapted to human disturbances. Barns and other outbuildings may provide habitat for bats (big brown bat, Mexican free-tailed bat) and barn owls, while a variety of structures provide nesting sites for swallows.

Figure 3-15 Natural Resources Study Area



Agricultural land provides habitat for small mammals and birds, including many of the species listed above. Once harvested, agricultural fields provide foraging opportunities for raptors, such as northern harrier, white-tailed kite and Swainson's hawk. Rice fields, which are extensive both within and west of the project area, pond large areas of water and provide good quality waterfowl and wading bird habitat. Orchards may provide cover and foraging habitat for many bird species also commonly found in woodlands and other habitats in the Study Area, however, mowing, plowing, spraying, and harvesting are activities which will deter normal cover and foraging by bird species.

Wildlife use of non-native grasslands is similar to agricultural lands, providing habitat for a wide variety of small mammals, songbirds, raptors and reptiles. Mixed oak woodland provides high-value wildlife habitat for a variety of bird species and some mammals.

Mixed riparian forest, especially where well developed, is one of the most important habitats for wildlife in the project area. The structural complexity of the habitat provides a variety of foraging, resting and nesting opportunities for many species, including a number of special status species. Many of the species found in oak woodlands also occur in the riparian forest.

The riparian communities along Auburn Ravine and Coon Creek provide relatively unobstructed wildlife corridors through the Study Area. These corridors are likely used by a number of wildlife species for crossing through the developed areas around Lincoln. Existing SR 65, the UPTC tracks and a number of secondary roads and farm roads cross these corridors. Existing SR 65 is immediately adjacent to the UPTC tracks through most of the Study Area. The main drainage: Auburn Ravine, Markham Ravine and Coon Creek, run under the highway and railroad via culverts.

3.7.4 Plants

Table 3-22 provides a breakdown of the plant communities and other land uses occurring in the overall Study Area as of 1998. The percentage of each community relative to the total acreage within the Study Area is also given. A list of all plant species observed in the Study Area is included in AppendixF. Figure 3-16 provides an aerial overview of the plant communities in the Study Area.

Table 3-22 Plant Communities Occurring in the Study Area

Comm-unity	Area in Hectares (acres)	% of Study Area	Description
Developed Disturbed	175.0 ha 432 ac	8.7 %	Included in this category are developed areas such as roadways, buildings and other structures, adjacent lots as well as undeveloped areas that have been severely disturbed by grading or other earth-disturbing activity. Vegetation is typically limited to ruderal species.
Agricultural Lands	855.0 ha 2,111 ac	42.7 %	Agricultural land, a dominant community type in the Study Area, includes all row crops, rice fields and orchards. Also included in this category are irrigation canals, ditches, small reservoirs, ponds, and similar areas directly associated with production of rice or other crops. Fallow fields are included in this community provided they are obviously part of an ongoing agricultural operation. Agricultural land occurs throughout the project area with the largest contiguous expanses located west of the Lincoln Airport and north of Wise Road.
Nonnative Grassland	257.3 ha 635 ac	12.8 %	Nonnative grassland is common in the Study Area. Vegetation in nonnative grassland is dominated by annual grasses and forbs including wild oats, soft chess, rigput brome, medusa grass, filaree and yellow star thistle. Included in this community type are fallow agricultural fields that have been fallow for so long as to be indistinguishable from nonnative grassland. Annual grassland that contains vernal pools and vernal pool complexes are not included in this category.
Mixed Oak Woodland	49.5 ha 122 ac	2.5 %	Valley oak and blue oak are the dominant trees, with interior live oak also common. Mixed oak woodland in the project area is generally open and contains an understory of nonnative grassland. These woodlands are often found on high terraces near drainage features, but also occur independent of any significant water source. The largest contiguous oak woodland in the Study Area occurs just west of Joiner Parkway, both north and south of Nicolaus Road. Oak woodland also occurs further west along Nicolaus Road and south of Auburn Ravine near Moore Road.
Mixed Riparian Forest	22.6 ha 60 ac	1.1 %	<p>The major drainage in the project area (Auburn Ravine and Coon Creek) support a mixed riparian forest typically dominated by valley oak but also including several other tree species, often as codominants. Dominant overstory species include valley oak, California black walnut and Goodding's willow. Other tree species include English walnut, Fremont cottonwood, black cottonwood, white alder, interior live oak, sandbar, arroyo and red willow. Understory species in the mixed riparian forest include Himalayan blackberry, mugwort, creeping wildrye, California wild grape, Baltic rush, buttonwillow, California rose and others.</p> <p>The vegetative complexity of the riparian community depends on the structural complexity of the floodplain, which often varies along the drainages. Where stream banks are deeply incised (typical in many reaches); oaks, walnuts and other trees typically occur in a narrow band along upper banks with nominal understory; the streambed supports little vegetation in these areas. In reaches with well-developed terraces, sandbar and other willows typically occupy the lower terraces with a variety of riparian species on the middle terraces and oaks along the upper banks. These areas generally support a well-developed understory.</p> <p>Riparian corridors in the project area are heavily used by cattle, and the plant community reflects this use. In the more intensively grazed areas, the understory is significantly reduced and few seedling trees occur. Deeply incised banks may also be a result of cattle grazing. None of the riparian corridors are free of impacts; Auburn Ravine appears to be the most highly degraded.</p>

Comm- unity	Area in Hectares (acres)	% of Study Area	Description
Valley Freshwater Marsh	56.0 ha 138 ac	2.8 %	<p>Perennial or nearly perennial slow moving or standing water is the common element of all freshwater marsh habitat. In deeper water areas, this community is dominated by cattail and bulrush, often associated with floating mats of water primrose. In shallower water, and on saturated banks, several species of rush, spikerush and sedge are common along with nutsedge, smartweed, dallis grass and Bermuda grass. Thickets of willow occur occasionally within marsh areas and are considered part of the marsh habitat. Valley freshwater marsh intergrades with open water in deeper waterbodies and with vernal marsh in shallower water areas.</p> <p>Valley freshwater marsh habitat in the project area occurs naturally in slow-moving creeks and sloughs (e.g., Yankee Slough), ponds, irrigation and roadside ditches and backwater areas of the larger drainages. The most extensive areas of valley freshwater marsh occur in Markham Ravine south of Nicolaus Road and at Bull Marsh in the northwest portion of the project area.</p> <p>Due to the long history of grazing and water diversions in the project area, much of the valley freshwater marsh habitat is degraded and thoroughly invaded by nonnative plant species. Portions of the Study Area support vegetation characteristic of valley freshwater marsh but are truly agricultural lands or disturbed areas that support this vegetation due to artificial water sources. Areas fitting this description were mapped as agricultural land or disturbed areas since they are not true valley freshwater marsh communities.</p>
Great Valley Willow Scrub	1.1 ha 2.8 ac	0.06 %	<p>Great Valley willow scrub only occurs in a few locations within the project area. Vegetation in this community generally consists of thickets of willow and Fremont cottonwood with little to moderate understory. Understory vegetation can include annual grasses and forbs, as well as shrub cover such as California rose and California blackberry. This community is always associated with a water source and often occurs adjacent to valley freshwater marsh.</p>
Grassland/ Northern Hardpan Vernal Pool Complex	561.4 ha 1,386 ac	28.0 %	<p>Vernal pools are seasonal wetlands that pond water for short periods during the winter and early spring due to an impermeable, subsurface layer that retards percolation. Vernal pools generally occur in nonnative grassland as part of a complex that includes the pools and contributing watershed interconnected through a series of vernal swales. They support plant and wildlife species specially adapted to the seasonal fluctuations such as the Federally threatened vernal pool fairy shrimp (<i>Branchinecta lynchi</i>) and Federally endangered vernal pool tadpole shrimp (<i>Lepidurus packardii</i>). Two types of vernal pools occur in the project area, northern hardpan vernal pools and volcanic mudflow vernal pools.</p> <p>The impermeable layer in northern hardpan vernal pools consists of an iron-silicate cemented hardpan. This type of vernal pool is by far the most common in the project area. Northern hardpan pools are generally associated with iron oxidized soils such as San Joaquin series. Dominant vegetation in northern hardpan vernal pools includes annual hairgrass, coyote thistle, downingia and popcorn flower.</p> <p>The largest concentrations of northern hardpan vernal pools in the project area are located in the extreme southern end between SR 65 and Industrial Boulevard and in the eastern portion of the project area between Nicolaus Road and Wise Road.</p>
Grassland/ Northern Volcanic Mudflow Vernal Pool Complex	4.7 ha 11.7 ac	0.2 %	<p>Northern volcanic mudflow vernal pools are created by cemented volcanic mudflows forming an impermeable layer. They are much less common than northern hardpan vernal pools and are limited to the Exchequer soil series within the project area. Volcanic mudflow pools are typically smaller and shallower than hardpan pools. As a result, they dry up sooner than hardpan pools and the flowering times are usually several weeks earlier. Typical plant species in northern volcanic mudflow vernal pools include yellow carpet, Fremont goldfields, coyote thistle and wooly marbles.</p> <p>Northern volcanic mudflow vernal pools only occur in two locations within the project area. One complex is located northeast of existing SR 65 between Nicolaus Road and Wise Road. A second, smaller complex is located in the southern portion of the project area, between SR 65 and Industrial Boulevard.</p>

Comm- unity	Area in Hectares (acres)	% of Study Area	Description
Vernal Marsh	10.0 ha 24.7 ac	0.5 %	Vernal marsh is a community type transitional between vernal pools and valley freshwater marsh. Vernal marsh areas are generally deeper, and stay wet longer, than vernal pools. Consequently, many typical vernal pool plant species do not occur in vernal marshes. Vernal marsh areas typically dry out in the summer; thus, many of the typical freshwater marsh species described previously are precluded. Common species found in vernal marshes include rushes and spike rushes in the deeper areas and vernal buttercup and popcorn flower in the shallows.
Open Water	11.4 ha 28.2 ac	0.6 %	Open waters are unvegetated areas of ponds, channels or other aquatic areas that are not included in another natural community. Open water is typically associated with valley freshwater marsh communities in the deeper water where marsh species cannot grow. The largest expanse of open water is located in Markham Ravine south of Nicolaus Road where the drainage has been partially dammed.
Total	2,004.0 hectares (4,948.3 acres)		

Figure 3-16a Plant Communities Occurring in the Project Area

Figure 3-16 b Plant Communities Occurring in the Project Area

3.7.5 Special Status Species

An annotated list of special status species potentially occurring in the project area was generated based on California Natural Diversity Data Base (CNDDB), California Native Plant Society (CNPS) and FWS lists coordination with agency biologists, review of previous project documents and input from biologists. A 2003 list was obtained for Section 7 purposes dated August 5, 2003. The annotated list is included in Table 3-23.

Table 3-23 Special Status Species Potentially Occurring in the Project Area

Common Name Latin Name	Status	Potential in Project Area / Results of Previous Studies	Notes
Mammals			
River otter <i>Lutra canadensis</i>	Protected furbearer	River otters have been observed in Markham Ravine, and it is expected that this species periodically occurs in the Study Area.	This uncommon species occurs along streams and lake borders throughout the Central Valley. Although primarily aquatic, otters will travel several kilometers over land to reach another stream or lake.
Spotted bat <i>Euderma maculatum</i>	FSC CSC	Suitable roosting habitat does not occur in the project area. This species is not expected to occur.	The spotted bat occupies a wide range of habitats, from arid deserts and grasslands to coniferous forest. Spotted bats need cliff crevices or caves for roosting.
Greater western mastiff bat <i>Eumops perotis californicus</i>	FSC CSC	This species was not observed during previous surveys, but could potentially occur in the project area since suitable roost trees are most likely present.	This species occurs in a variety of arid to semi-arid habitats including grassland, chaparral and deciduous woodlands, and is known to utilize trees as roost sites.
Small-footed myotis bat <i>Myotis ciliolabrum</i>	FSC	Could potentially occur. Buildings in project area may provide roost sites. Not observed during previous surveys.	This species utilizes buildings as roost sites and could potentially occur in the project area.
Long-eared myotis bat <i>Myotis evotis</i>	FSC	Although not observed during previous surveys, the long-eared myotis bat may utilize buildings for nursery or roost sites and may occur in the project area.	This species occurs in a wide variety of habitats to 2,743 m (9,000 ft) elevation, but prefers coniferous woodlands and forests.
Fringed myotis bat <i>Myotis thysanodes</i>	FSC	Although not observed during previous surveys, the fringed myotis bat may occur in the project area.	This species occurs in a wide variety of habitats and may utilize buildings as nursery or roost sites.
Long-legged myotis bat <i>Myotis volans</i>	FSC	This species was not observed during previous surveys. Suitable roost trees are most likely present in the project area; as a result, this species could potentially occur.	It is most common in woodland and forest habitats above 1,219 m (4,000 ft).
Yuma myotis bat <i>Myotis yumanensis</i>	FSC CSC	Could potentially occur. Buildings in project area may provide roost sites. Not observed during previous surveys.	This species occurs in open forests and woodlands, and its distribution is strongly tied to water sources. Although not observed during previous surveys, buildings in the project area may provide roost or nursery sites and this species could potentially occur.

Common Name Latin Name	Status	Potential in Project Area / Results of Previous Studies	Notes
Pale Townsend's big-eared bat <i>Plecotus townsendii pallescens</i>	FSC CSC	Although not observed during previous surveys, the pale big-eared bat could potentially occur in the project area, as existing buildings could be utilized as roost sites.	This species occurs in a variety of habitats.
Pacific western big-eared bat <i>Plecotus townsendii townsendii</i>	FSC CSC	Although not observed during previous surveys, Townsend's western big-eared bat may utilize buildings in the project area as roost sites, and consequently could potentially occur.	This species occurs in a variety of habitats
San Joaquin pocket mouse <i>Perognathus inornatus</i>	FSC	Although not observed during previous surveys, the San Joaquin pocket mouse could potentially occur in the project area.	This species occurs in grassland and blue oak savanna.
Birds			
Cooper's hawk <i>Accipiter cooperii</i>	CSC	Cooper's hawks have been observed foraging in the project area. No nests were identified during previous surveys; however, nesting habitat does occur on the project site.	This species occurs in woodlands and generally nests in riparian communities.
Sharp-shinned hawk <i>Accipiter striatus</i>	CSC	Sharp-shinned hawks have been observed foraging in the project area. Nesting habitat is present in the project area, but no nests have been identified.	This species breeds in coniferous and riparian deciduous forests, and prefers riparian areas.
Swainson's Hawk <i>Buteo swainsoni</i>	ST	At least eight Swainson's Hawks were observed in and around the project area during a two-day survey in May 1999. At least three of the eight hawks were observed within the Study Area. The other observations were outside of the project area, but within an approximate 16.1 km (10 mi) radius of the project area.	This species requires fields or grasslands for foraging and breeds in stands with few trees in juniper-sage flats, riparian areas and oak savanna. Swainson's Hawk nesting habitat in, and in the vicinity of, the project area consists of the taller trees in the Coon Creek, Auburn Ravine and Pleasant Grove Creek riparian corridors. The grasslands and fallow agricultural lands that are not planted in rice or orchards provide suitable foraging habitat.
American peregrine falcon <i>Falco peregrinus anatum</i>	SE; State Fully Protected, MNBMC	Although some potential foraging habitat occurs in the project area, no nesting habitat is present. This species is not expected to occur in the project area.	This species nests on high cliffs or human-made structures and generally forages near water.
Prairie falcon <i>Falco mexicanus</i>	CSC	Prairie falcons have been observed in the project area. No nesting habitat present.	This species forages in dry, open country and nests on cliffs. Foraging habitat for prairie falcon occurs in the project area but no nesting habitat is present.
Bald eagle <i>Haliaeetus leucocephalus</i>	FT SE State Fully Protected	Some potential foraging habitat is present but no bald eagle nesting habitat occurs in the project area, and this species is not expected to occur.	This species occurs near ocean shorelines, lake margins and rivers where it forages. Bald eagles nest in tall trees or on cliffs near large bodies of water.

Common Name <i>Latin Name</i>	Status	Potential in Project Area / Results of Previous Studies	Notes
Tricolored blackbird <i>Agelaius tricolor</i>	FSC CSC MNBMC	Suitable nesting habitat (i.e., freshwater marsh) occurs in the project area. Tricolored blackbirds have been observed in the project area but no nesting colonies have been identified.	This species nests colonially, usually in cattail and tule marshes, but is also known to nest in thistle and blackberry patches and other dense vegetation.
Golden eagle <i>Aquila chrysaetos</i>	Federally Protected; CSC, State Fully Protected	Although no nesting habitat is present, golden eagles have been observed foraging in the project area.	This species forages in open country and nests in trees or on cliffs.
Northern harrier <i>Circus cyaneus</i>	CSC	Northern harriers have been observed foraging in the project area, and one nest was identified.	Suitable habitat for this species includes coastal salt marsh, fresh-water marsh and open grassland, where it both forages and nests.
White-tailed kite <i>Elanus caeruleus</i>	State Fully Protected, MNBMC	White-tailed kites have been observed foraging in the project area, and one nest was identified.	This species occurs in open groves, river valleys, marshes and grasslands.
Double-crested cormorant <i>Phalacrocorax auritus</i>	CSC	This species was observed in the project area near Markham Ravine. Nesting habitat occurs in the project area, but no nesting colony has been identified.	This species nests colonially on coastal cliffs and offshore islands, and along lake margins in the interior of the state.
Aleutian Canada goose <i>Branta canadensis leucopareia</i>	FT	Wintering (foraging) habitat is present in the project area for Aleutian Canada goose, and this species could occur	This species breeds in the Aleutian Islands and winters in lower latitudes including areas of the U.S. This species generally winters on or near lakes or other bodies of fresh water, often foraging in pastures or fields.
Mountain plover <i>Charadrius montanus</i>	FTP CSC MNBMC	This species could potentially forage in the project area during the winter.	The mountain plover breeds in short-grass prairie in the mid-western U.S. and winters in semi-arid and arid grasslands and agricultural areas in the southwestern U.S. and Mexico.
Western burrowing owl <i>Athene cunicularia hypugea</i>	FSC CSC MNBMC	Although not observed in the Study Area, suitable habitat for the burrowing owl is present, and this species could potentially occur.	The burrowing owl inhabits open, dry grasslands, deserts and scrublands with low-growing vegetation and is commonly observed in agricultural areas. The burrowing owl nests below ground, utilizing abandoned burrows of other species, especially ground squirrels.
Ferruginous hawk <i>Buteo regalis</i>	FSC CSC MNBMC	Ferruginous hawks could potentially forage in the project area during the winter.	This species breeds in the Great Plains region from the mid-western U.S. to southern Canada. Ferruginous hawks winter in open grasslands, sagebrush flats, desert scrub and other open country in the southwestern portion of their breeding range and extending into the southwestern U.S. and Mexico.
White-faced ibis <i>Plegadis chihi</i>	FSC CSC MNBMC	Although not observed during surveys, the white-faced ibis could utilize marsh habitat within the project area for breeding and/or foraging.	This species occurs in freshwater marsh habitats.

Common Name <i>Latin Name</i>	Status	Potential in Project Area / Results of Previous Studies	Notes
California horned lark <i>Eremophila alpestris actia</i>	CSC	Observed on the project site during previous surveys. Suitable nesting habitat present; no nesting observed.	This species nests in grassland.
Grasshopper sparrow <i>Ammodramus savannarum</i>	FSC MNBMC	Grasshopper sparrows have been observed in the project area but no nests were identified.	They occur in dense grasslands, lowland plains, and in valleys and on hillsides on lower mountain slopes. The project area could support breeding populations of this species.
Lark sparrow <i>Chondestes grammacus</i>	FSC	Although not observed during surveys, suitable habitat for the lark sparrow is present in the project area and this species could occur.	The lark sparrow occurs in pastures, farmlands and roadsides.
American bittern <i>Botaurus lentiginosus</i>	FSC, MNBMC	This species has been observed in the project area but no nesting was observed.	They occur in freshwater and slightly brackish marsh habitat, as well as coastal saltwater marsh. Suitable nesting habitat for the American bittern occurs in the project area.
Amphibians			
Foothill yellow-legged frog <i>Rana boylei</i>	FSC CSC State Protected	The foothill yellow-legged frog is thought to be extinct in the Sacramento Valley and is not expected to occur in the project area.	This species occurs in shallow, partly-shaded streams and riffles with rocky substrates. This frog prefers substrates that are at least cobble-sized and requires open areas where it can bask on rocks.
Mountain yellow-legged frog <i>Rana muscosa</i>	FSC CSC State Protected	No suitable habitat is present in the project area, and this species is not expected to occur.	This species occurs in montane habitats, often in riparian areas.
California red-legged frog <i>Rana aurora draytonii</i>	FT CSC State Protected	This species has not been observed in the Study Area and there are no records for the project vicinity. Although suitable habitat for the California red-legged frog is present in the project area, due to the presence of large numbers of non-native predators (i.e., bullfrog, crayfish, largemouth bass, etc.), this species is not expected to occur.	The red-legged frog inhabits lowlands and foothills in or near permanent sources of deep water. The frog prefers ponds or creeks with extensive shoreline vegetation but will disperse 1.6 km (1 mi) or more during and after rain events.
Western spadefoot toad <i>Scaphiopus hammondi</i>	FSC CSC State Protected	Suitable habitat for the western spadefoot occurs in the project area, and this species could potentially occur.	Spadefoots occupy a variety of lowland habitats including washes, alluvial fans and river floodplains. Areas of sandy soil and open vegetation are preferred.
California tiger salamander <i>Ambystoma californiense</i>	FC CSC State Protected	Suitable habitat for California Tiger Salamander is present in the project area, but the project area is well north of its known range. Consequently, this species is not expected to occur.	This species occurs near water sources in grasslands and open woodland habitats.

Common Name Latin Name	Status	Potential in Project Area / Results of Previous Studies	Notes
Reptiles			
Northwestern pond turtle <i>Clemmys marmorata marmorata</i>	FSC CSC State Protected (full species)	Northwestern pond turtles have been observed in the project area.	This species occurs in permanent or nearly permanent bodies of water in a variety of habitats.
California horned lizard <i>Phrynosoma coronatum frontale</i>	FSC CSC State Protected	Although not observed during previous surveys, this species occurs in a wide variety of habitats and could potentially occur in the project area.	A variety of habitats.
Giant garter snake <i>Thamnophis gigas</i>	FT ST State protected	Suitable giant garter snake habitat is present in the project area, but the project is well east of its known distribution. The giant garter snake is not expected to occur in the project area.	It occurs in freshwater marsh and low gradient streams and has adapted to similar habitat provided by drainage canals and irrigation ditches.
Fish			
Chinook salmon <i>Oncorhynchus tshawytscha</i>		The chinook salmon (<i>Oncorhynchus tshawytscha</i>) is an anadromous species that spends part of its life in freshwater and part in salt water. These species spawn in small, freshwater streams where the young remain for a time before migrating to the ocean. Adults return to their natal streams to spawn and complete their life cycle. Chinook salmon require clean gravel beds in which to spawn. The reaches of the drainages that flow through the project area do not contain suitable spawning habitat for chinook salmon. However, upstream reaches of Auburn Ravine and Coon Creek do contain potential spawning habitat. In addition, drainages and tributaries within the project area could provide non-natal rearing habitat for salmon fry in early stages of development.	
Winter-run chinook salmon	FE SE	Winter-run salmon have not been observed in the project area, and are not expected to occur.	
Central Valley spring-run chinook salmon	FT	Spring run salmon have not been observed in the project area, and are not expected to occur.	
Central Valley fall-run chinook salmon	FC	Fall-run chinook salmon have been observed in low numbers in Auburn Ravine, Coon Creek and Ingram Slough.	
Delta smelt <i>Hypomesus transpacificus</i>	FT ST	No suitable habitat for this species occurs in the project area and it is not expected to occur.	It occurs in sloughs and backwater areas of the Sacramento-San Joaquin Delta.
Central Valley steelhead <i>Oncorhynchus mykiss</i>	FT	The Central Valley steelhead could potentially spawn in upstream reaches of Auburn Ravine or Coon Creek, and consequently could occur in the project area.	Like the chinook salmon, this species is anadromous and migrates from the ocean to its spawning grounds. Its spawning habitat requirements are similar to those of salmon.
Sacramento splittail <i>Pogonichthys macrolepidotus</i>	FT CSC	Sacramento splittail has not been observed in the Study Area and is not expected to occur due to absence of suitable habitat.	This species occurs in slow-moving sections of large river systems.
Green sturgeon <i>Acipenser medirostris</i>	FSC CSC	It has not been observed in the Study Area and is not expected to occur.	This species is only known to spawn in the Sacramento and Klamath Rivers.

Common Name <i>Latin Name</i>	Status	Potential in Project Area / Results of Previous Studies	Notes
Longfin smelt <i>Spirinchus thaleichthys</i>	FSC CSC	This species has not been observed in the Study Area and is not expected to occur.	Longfin smelt occur in sloughs and backwater areas of the Sacramento-San Joaquin Delta.
River lamprey <i>Lampetra ayresi</i>	FSC CSC	The river lamprey has not been observed in the Study Area but could potentially occur.	This species occurs in the lower Sacramento River, San Joaquin River, and Russian River, and in coastal streams north of the San Francisco Bay.
Pacific lamprey <i>Lampetra tridentata</i>	FSC	This species has been identified in the Study Area.	The Pacific lamprey is known from most coastal streams from Alaska south to southern California.
Invertebrates			
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	FT	Vernal pool fairy shrimp have been identified in vernal pools throughout the project area.	This species inhabits vernal pools in grasslands in the Central Valley and central and southern coast mountains.
Vernal pool tadpole shrimp <i>Lepidurus packard</i>	FE	Although not previously recorded in the Study Area, vernal pool tadpole shrimp are known to occur at the west edge of the project and could potentially occur in the project area.	This species inhabits vernal pools and swales in the Sacramento Valley.
Valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	FT	Elderberry plants occur in the Study Area, and Valley elderberry longhorn beetle could potentially be present.	This species occurs only in the Central Valley in close association with blue elderberry (<i>Sambucus mexicana</i>). The larvae of the beetle feed and mature within the stems of elderberry plants with a diameter of one inch or greater.
Plants			
Slender Orcutt grass <i>Orcuttia tenuis</i>	FT SE CNPS 1B	Slender Orcutt grass was not recorded during previous focused surveys or during 1999 sampling. There are no known records from the project vicinity.	This species occurs in vernal pools from Sacramento County in the south to Siskiyou County.
Sacramento Orcutt grass <i>Orcuttia viscida</i>	FE Se CNPS 1B	Could potentially occur. Associated with Bogg's Lake hedge-hyssop, which was identified on the project site. Not identified during previous surveys.	This species is only known from vernal pools in Sacramento County.
Ahart's dwarf rush <i>Juncus leiospermus</i> var. <i>ahartii</i>	FSC CNPS 1B	This species was observed in ungrazed pools in the "A" alignments northwest of Lincoln during previous surveys. Ahart's dwarf rush could potentially occur elsewhere in the Study Area.	Ahart's dwarf rush occurs in vernal pools.
Hispid bird's-beak <i>Cordylanthus mollis</i> ssp. <i>hispidus</i>	FSC CNPS 1B	The closest known occurrence of this species is approximately 6.4 km (4 mi) southeast of the project area. Hispid bird's beak was not observed in the project area during previous surveys, but could potentially occur.	This species occurs in damp, alkaline soils in meadows, playas, and valley and foothill grasslands.
Red Bluff dwarf rush <i>Juncus leiospermus</i> var. <i>leiospermus</i>	CNPS 1B	This species was not recorded in the Study Area during previous focused surveys.	This species occurs in margins of vernal pools and in wet places in chaparral and woodland communities.

Common Name <i>Latin Name</i>	Status	Potential in Project Area / Results of Previous Studies	Notes
Bogg's Lake hedge-hyssop <i>Gratiola heterosepala</i>	SE CNPS 1B	Bogg's Lake hedge-hyssop was observed in one vernal pool east of the "A" alignments and could occur elsewhere within the Study Area.	This species occurs in vernal pools and freshwater marshes and swamps.
Dwarf downingia <i>Downingia pusilla</i>	CNPS 2	Dwarf downingia was observed in the deeper vernal pools throughout the Study Area.	This species occurs in vernal pools and roadside ditches in valley and foothill grasslands.
Big-scale balsam root <i>Balsamorhiza macrolepis</i> var. <i>macrolepis</i>	CNPS 1B	Could potentially occur. Not identified during previous surveys.	This species occurs in valley and foothill grassland habitat.
Legenere <i>Legenere limosa</i>	FSC CNPS 1B	Legenere was not recorded in the Study Area during previous focused surveys but has been recorded in the general vicinity.	This species occurs in wet areas and vernal pools.
Valley oak <i>Quercus lobata</i>	Protected by Senate Concurrent Resolution No. 17		Riparian areas and isolated stands.

Federal

FE - Endangered

FT - Threatened

FPE - Proposed Endangered

FPT - Proposed Threatened

FC - Candidate

FSC - Species of Concern

MNBMC - Migratory Nongame Birds of Management Concern

State

SE – Endangered

ST – Threatened

CSC - Species of Concern

California Native Plant Society

CNPS 1B – Rare or Endangered in California and elsewhere

CNPS 2 - Rare or Endangered in California, more common elsewhere

Endangered (state and federal): A species that is in danger of extinction throughout all or a significant portion of its range.

Threatened (state and federal): A species that that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Proposed Threatened or Endangered (federal): Any species that is proposed in the Federal Register to be listed under Section 4 of the Endangered Species Act.

Candidate (federal): Species for which the FWS has on file sufficient information on biological vulnerability and threat(s) to support issuance of a proposal for listing, but issuance of a proposed rule is currently precluded by higher priority listing actions.

Species of Concern (federal): A species that was a former federal Category 2 Candidate for listing, which is a species for that the FWS has concerns about, but has insufficient information on file on vulnerability and threats to support issuance of a proposal for listing.

Species of Concern (state): California species of special concern are those that the California Department of Fish and Game is concerned about because of declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction.

Migratory Nongame Birds of Management Concern: Species of migratory nongame birds that are considered to be of concern in the United States because of: 1) documented or apparent population declines; 2) small or restricted populations, or; 3) dependence on restricted or vulnerable habitats.

CNPS List 1B: Plants that the California Native Plant Society (CNPS) considers to be rare, threatened or endangered in California and elsewhere.

CNPS List 2: Plants that the CNPS considers to be rare, threatened or endangered in California, but are more common elsewhere.

Figure 3-17 Special Status Species

Figure 3-17 shows locations where special status species have been recorded in the Study Area. Letters documenting coordination with the U.S. Fish and Wildlife Service are located in Chapter 7.

This section provides an overview of the special status species that are known to occur, or may potentially occur, within the Study Area. Additional detailed information on State and Federal listed species potentially affected by this project is included in the Natural Environment Study, available by request. The streams present within the project site will likely be considered Critical Habitat for the Central Valley steelhead. Because the fall/late fall-run chinook salmon is a candidate for listing as threatened or endangered, Critical Habitat, and Essential Fish Habitat, could be designated for this ESU if it is listed prior to implementation of the project.

3.7.6 Wetlands/Jurisdictional Waters Assessment

Wetlands and waters of the U.S. (streams and lakes) that are subject to California Department of Fish and Game and/or U.S. Army Corps of Engineers jurisdiction present in the project study area are summarized in Table 3-24.

California Department of Fish and Game (CDFG)

CDFG, through provisions of Sections 1602 of the California Administrative Code, is empowered to issue agreements for any alteration of a river, stream or lake where fish or wildlife resources may be adversely affected. The presence of a channel bed and banks, and at least an intermittent flow of water define streams (and rivers). The agreement generally includes, within the jurisdictional limits of streams and lakes, any riparian habitat present. In most situations, wetlands associated with a stream or lake would fall within the limits of riparian habitat.

For purposes of this evaluation, CDFG waters include mixed riparian forest habitat associated with Auburn Ravine and Coon Creek, willow scrub and marsh habitat (most of which is associated with drainages or ponds) and other waters (primarily ponds). Vernal pools and swales are not included, as these features are not regulated by CDFG.

The project will result in the alteration of lakes and streambeds subject to CDFG regulation. Consequently, a Section 1602 Streambed Alteration Agreement will be required. Notification to CDFG is generally made after the environmental process is complete and final plans are being prepared.

Table 3-24 Jurisdictional Waters Occurring in the Study Area

Jurisdictional Waters	Area (<i>acres in italics</i>)	Percentage of total wetlands
USACE – Wetlands		
Willow scrub	1.9 ha (4.7 ac)	1.76%
Freshwater marsh	61.47 ha (151.9 ac)	57.02%

Jurisdictional Waters	Area (<i>acres in italics</i>)	Percentage of total wetlands
Vernal marsh	10.32 ha (25.5 ac)	9.57%
Vernal pool	31.24 ha (77.2 ac)	28.98%
Vernal swale	2.87 ha (7.1 ac)	2.67%
Total - USACE Wetlands		107.81 ha (266.4 ac)
USACE – Non-wetlands (Open water)		11.33 ha (28.0 ac)
Total - USACE Wetlands and Waters of the U.S.		119.14 ha (294.4 ac)
CDFG Jurisdictional Waters (Estimated)		92.55 ha (228.7 ac)

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U.S. Army Corps of Engineers (USACE)

Creeks, marshes, vernal pools and other waters within the Study Area are subject to USACE permitting authority under Section 404 of the Clean Water Act. A Section 404 permit from the USACE is required for discharges of dredged or fill material into vernal pools and swales, creeks, marshes and other regulated waters of the U.S. These discharges will occur as a result of roadbed construction, bridge and culvert construction and other similar activities. Based on preliminary impact determinations, an individual 404 permit will likely be required. Riparian communities may not fall under USACE jurisdiction unless they are below the ordinary high water mark (OHWM) or classified as wetlands.

Both NEPA and Section 404 of the Clean Water Act require a thorough evaluation of project alternatives as part of the review process. NEPA regulations require that an EIS “rigorously explore and objectively evaluate all reasonable alternatives.” EPA regulations, which apply to USACE permitting authority under Section 404, stipulate that only the least environmentally damaging practicable alternative (LEDPA) may be permitted. The NEPA/404 Integration MOU was adopted in 1993 in order to improve interagency coordination and integrate the NEPA and Section 404 procedures. Section 404(b)(1) requires an Alternatives Analysis in order to document the evaluation and identification of the LEDPA.

The project is subject to the NEPA/404 Integration Memorandum of Agreement (MOU); consequently, coordination with the USACE regarding permitting requirements has been ongoing for some time. Documentation of the NEPA/404 coordination can be found in Chapter 7. An Alternatives Analysis, pursuant to Section 404(b)(1) requirements, also has been prepared and is available for review at the Caltrans’ District 3 Sacramento office, 2389 Gateway Oaks Dr. Sacramento, CA.

Through the NEPA/404 process, the LEDPA was identified (D13 North Modified). Concurrence was received on the Draft Mitigation and Monitoring Plan in December 2004 for

the project and a final concurrence from the USACE will be pursued after final design has been completed. Letters are included in Appendix E, NEPA/404 Communication.

California Regional Water Quality Control Board

As part of the 404 permitting process, a Section 401 Certification from the Regional Water Quality Control Board is required. Application to the Regional Board is generally made after the environmental document is complete. A 401 Certification will be required before the 404 permit is issued.

Federal Wetland Delineation

The wetland delineation consists of a review and updating of the previous wetland delineation that was completed in 1994. The most recent wetland delineation was submitted to USACE in March 2004, and has not yet been verified. The delineation is preliminary and intended to support the evaluation of project alternatives. A wetland delineation has been prepared and submitted to the regulatory agencies and is awaiting approval. In order to be considered a jurisdictional wetland by the USACE and therefore subject to regulatory authority under Section 404 of the Clean Water Act, an area must possess three wetland characteristics: hydrophytic vegetation, wetland hydrology and hydric soils. Wetland vegetation, hydrology and soils each have specific criteria that must be satisfied in order for that particular wetland characteristic to be met. There are, however, exceptions to requirement of satisfying all three parameters, especially for atypical wetlands and “problem wetlands.”

Wetland Value Assessment

Wetlands and other waters in the Study Area provide a variety of functions and values typical of these aquatic ecosystems. The objective of the wetland value assessment is to provide a useful means for comparing project alternatives based on the relative quality of wetland resources present.

There are two primary wetland types in the Study Area: vernal pool/swale complexes and freshwater marsh. Separate evaluation factors were developed for each type. The acreage of other wetland types such as willow scrub and vernal marsh is relatively limited; consequently, a value assessment of these types was not performed. Locations of the wetlands evaluated are shown in Figure 3-18.

Figure 3-18 Wetlands and Other Regulated Waters

Vernal Pool/Swale Complexes

These wetlands are characterized by a seasonal cycle of flooding and saturation during the winter and early spring and desiccation during the summer and fall. Most vernal pool wetlands support specialized plant and invertebrate communities adapted to this hydrologic regime. Vernal pools often occur in complexes consisting of a number of pools interconnected by swales. The wetland value assessment for the vernal pool complexes depicted in Figure 3-18 is presented in Table 3-25.

Evaluation Factors: Factors considered most important for vernal wetlands, generally based on the criteria developed by U.S. Fish and Wildlife Service (FWS), include the following:

Size of vernal pool complex - larger complexes are more likely to exhibit a greater diversity of soils, vernal pool types, plant species, etc. and are more resistant to disturbances. Larger complexes are generally considered to have greater value than small complexes.

Vernal pool density - vernal pool complexes with more wetland acreage (i.e., higher pool density) are considered to have greater value.

Vernal pool type - less common vernal pool types (i.e., volcanic mudflow vernal pool complexes) are considered to have greater value.

Occurrence of special status species - vernal pools supporting State or Federally listed or proposed species, or species with some other special status, are considered to have greater value.

Condition of wetlands - the general condition of the site and level of degradation. Vernal pool complexes in good condition are considered to have higher value.

Table 3-25 Wetland Value Assessment for Vernal Pool Complexes

Complex #	Location	Pool Density ¹	Complex Size ²	Vernal Pool Type	Special Status Species		Condition	Comments
					Observed in Complex	Potentially Occurring		
All Alignments (A5C1, AAC2, D1, D13)								
1	South end of Study Area	2.2 %	120-400 ha <i>300-1000 acres</i>	Northern hardpan and volcanic mudflow	vernal pool fairy shrimp, CA linderiella	vernal pool tadpole shrimp, dwarf downingia, Ahart's dwarf rush, Bogg's Lake hedge-hyssop, legenera	Good	Large, diverse, relatively undisturbed complex; includes some tracts of high quality and density pools (outside of Study Area); all alignments cross the east edge of complex, which is moderately disturbed (fair condition)

Complex #	Location	Pool Density ¹	Complex Size ²	Vernal Pool Type	Special Status Species		Condition	Comments
					Observed in Complex	Potentially Occurring		
2	North of Ingram Slough, adjacent to Moore Road	3.3 %	40-120 ha 100-300 acres	Northern hardpan	vernal pool fairy shrimp, CA linderiella	vernal pool tadpole shrimp, dwarf downingia, Ahart's dwarf rush, Bogg's Lake hedge-hyssop, legenere	Fair	Smaller complex surrounded by development and disturbance; has some very large pools; all alignments bisect this complex.
7	North of Coon Creek	7.0 %	40-120 ha 100-300 acres	Northern hardpan	vernal pool fairy shrimp, CA linderiella, dwarf downingia	vernal pool tadpole shrimp, Ahart's dwarf rush, Bogg's Lake hedge-hyssop, legenere	Fair	Smaller complex with high density of pools; generally surrounded by agricultural land; all alignments bisect this complex.
8	Yankee Slough area	1.7 %	> 400 ha 1000 acres	Northern hardpan	vernal pool fairy shrimp, CA linderiella	vernal pool tadpole shrimp, dwarf downingia, Ahart's dwarf rush, Bogg's Lake hedge-hyssop, legenere	Fair	Very large complex, extending well east of Study Area; includes scattered development and agricultural uses; some tracts of high quality pools remain; all alignments cross west edge of complex.
Eastern Corridor (A5C1, AAC2)								
5	West of clay pits and Sierra Pacific, adjacent to SR 65	2.9 %	40-120 ha 100-300 acres	Northern hardpan and Volcanic mudflow	vernal pool fairy shrimp, CA linderiella, dwarf downingia, Ahart's dwarf rush, Bogg's Lake hedge-hyssop	vernal pool tadpole shrimp, legenere	Good	Diverse complex; includes some areas of high quality pools; complex is crossed by existing Rt. 65 and residential development is encroaching on the west; eastern alignments bisect this complex
6	Airport area	3.9 %	> 400 ha 1000 acres	Northern hardpan	vernal pool fairy shrimp, CA linderiella, dwarf downingia	vernal pool tadpole shrimp, Ahart's dwarf rush, Bogg's Lake hedge-hyssop, legenere	Fair	Large, diverse complex; although affected by extensive development, including airport, some large tracts of high quality pools remain; eastern alignments bisect east edge of this complex
Western Corridor (D1, D13)								
3	North of Auburn Ravine, adjacent Nelson Lane	17.2 %	< 40 ha 100 acres	Northern hardpan	vernal pool fairy shrimp, CA linderiella	vernal pool tadpole shrimp, dwarf downingia, Ahart's dwarf rush, Bogg's Lake hedge-hyssop, legenere	Good	Small, isolated complex with very high pool density; relatively undisturbed; complex bisected by both western alignments

Complex #	Location	Pool Density ¹	Complex Size ²	Vernal Pool Type	Special Status Species		Condition	Comments
					Observed in Complex	Potentially Occurring		
4	Markham Ravine area	7.0 %	< 40 ha 100 acres	Northern hardpan	vernal pool fairy shrimp, CA linderiella	vernal pool tadpole shrimp, dwarf downingia, Ahart's dwarf rush, Bogg's Lake hedge-hyssop, legenera	Poor	Small complex includes several residences and is generally degraded; D1 alignment crosses western portion of this complex

¹ Density of overall complex estimated based on density within Study Area.

² Total complex size, including portions extending outside of Study Area.

Analysis

The eight vernal pool complexes vary widely in the attributes considered in this evaluation. Complex size ranges from about 50 acres (Complex 4) to over 2,000 acres (Complex 8). Vernal pool density ranges from 1.7 % (Complex 8) to 17.2 % (Complex 3), average density is 5.7 %. Complex condition ranges from good (Complexes 1, 3 and 5) to poor (Complex 4). All of the complexes showed some level of disturbance; consequently, none were considered to be in excellent condition.

In order to compare the various complexes, they were assigned one of three relative value categories (High, Moderate or Low) based on the factors described above.

Complex 4 is clearly the lowest value complex in the Study Area due to its small size and poor condition. Complex 5 is probably the highest value due to the presence of two pool types and large number of observed special status species. Most of Complex 1, which also includes two pool types, is outside of the Study Area and has not been surveyed for special status species.

Freshwater Marsh Complexes

Freshwater marsh is the most abundant wetland type in the Study Area (See Figure 3-19). This habitat is highly variable in configuration, habitat composition and overall quality.

Figure 3-19 Freshwater Marsh Complexes

Evaluation Factors. Factors considered most important for freshwater marsh wetlands include the following:

Size of marsh complex - larger complexes are more likely to exhibit a diversity of habitat types, be resistant to disturbances and provide greater opportunities for wildlife use.

Complexity of habitat - marsh wetlands supporting several habitat types (e.g., open water, emergent wetlands, willow scrub, overstory canopy) are considered to have greater value.

Occurrence of special status species - wetlands supporting State or Federally listed or proposed species, or species with some other special status, are considered to have greater value.

Condition of wetlands - the general condition of the site, including the diversity of wetland and upland habitats and level of degradation. Wetlands in good condition are considered to have higher value.

The value assessment for freshwater marsh is presented in Table 3-26. The following ratings were assigned to seven freshwater marsh complexes:

<i>Complex Size:</i>	Actual wetland area
<i>Habitat Complexity:</i>	High, Moderate or Low
<i>Special Status Species:</i>	Species recorded or expected to occur
<i>Condition:</i>	Excellent, Good, Fair or Poor

Table 3-26 Wetland Value Assessment for Freshwater Marsh

Wetland No.	Location	Wetland Acreage¹	Habitat Complexity	Potential Special Status Species	Condition	Comments
All Alignments						
5	Coon Creek	0.7 ha 1.9 ac	Moderate	River otter, double-crested cormorant, northwestern pond turtle, chinook salmon, Central Valley steelhead, river lamprey, Pacific lamprey	Fair	Herbaceous marsh occurs in small, discontinuous patches along low terraces of creek; subject to regular scour; wildlife value enhanced by presence of riparian community
6	Yankee Slough	3.6 ha 9.0 ac	Moderate	Tricolored blackbird, white-faced ibis, American bittern, northwestern pond turtle	Fair-Good	Primarily herbaceous marsh with cattail and tule thickets interspersed with open water and willow scrub

Wetland No.	Location	Wetland Acreage ¹	Habitat Complexity	Potential Special Status Species	Condition	Comments
Eastern Corridor (A5C1, AAC2)						
1	Markham Ravine, west of Sierra Pacific	0.3 ha 0.7 ac	High	Tricolored blackbird, double-crested cormorant, Aleutian Canada goose, white-faced ibis, American bittern, northwestern pond turtle	Good	Marsh consists of a small pond and adjacent wetlands; high diversity with open water, mudflats, cattail/tule thickets and willow/riparian scrub
2	Adjacent to existing SR 65, west of clay pits	1.7 ha 4.1 ac	Low	Tricolored blackbird, northwestern pond turtle	Fair	Small, ephemeral marsh associated with low gradient drainage; minimal habitat development
Western Corridor (D1, D13)						
3	West end of Markham Ravine	22.4 ha 55.2 ac	High	River otter, tricolored blackbird, double-crested cormorant, Aleutian Canada goose, white-faced ibis, American bittern, northwestern pond turtle	Good to Excellent	Large marsh complex including a significant amount of open water; high diversity and good habitat development
4	West of airport	11.3 ha 28.0 ac	Low	Tricolored blackbird, northwestern pond turtle	Fair	Marsh consists of low-lying areas that impound water due to blockage by ricefield berm; limited habitat development
7	Duck ponds, Dowd and Riosa Rds.	19.7 ha 48.6 ac	High	Tricolored blackbird, double-crested cormorant, Aleutian Canada goose, white-faced ibis, American bittern, northwestern pond turtle	Good	Marsh primarily consists of man-made duck ponds; total area of marsh estimated at over 200 ac; this marsh is largely avoided by the western alignments

¹ Acreage within Study Area.

Analysis

Similar to the vernal pool complexes evaluated previously, the seven marsh complexes vary widely in the attributes considered in this evaluation. Wetland acreage within each complex ranges from less than one acre (Wetland 5) to over 55 acres (Wetland 3). Complexity ranges from low to high, and condition ranges from fair to good/excellent. All of the complexes showed some level of disturbance.

In order to compare the various marsh complexes, they were assigned to one of three value categories (High, Moderate or Low) based on the factors described above.

Table 3-27 Value Assessment of Marsh Complexes

High Value:	Marsh 3 - relatively large marsh complex; high diversity and good condition; habitat for several special status species Marsh 7 - very large marsh complex, most of which is outside Study Area; high diversity; good condition; habitat for several special status species
Moderate Value:	Marsh 1 - small in area and close to development but otherwise high quality due to complexity and condition of habitats; potential habitat for several special status species Marsh 6 - relatively small and linear, but with pockets of good herbaceous marsh habitat
Low Value:	Marsh 2 - small in area with low complexity, possibly ephemeral water supply and located close to development Marsh 4 - moderately large marsh complex, but with low complexity and somewhat degraded; limited habitat for special status species Marsh 5 - Although Coon Creek supports a valuable riparian community and provides high quality wildlife habitat, the marsh wetlands associated with the creek are small and discontinuous

Marsh 2 is the lowest value complex in the Study Area due to its small size, limited complexity and fair condition; Marsh 4 is similar but significantly larger. Marsh 3 is probably the highest value in the Study Area due to its large size, diversity of habitats and good to excellent condition.

3.8 CULTURAL RESOURCES

The National Historic Preservation Act of 1966, as amended, established the Advisory Council on Historic Preservation (ACHP) and set precedents and policies for the protection and preservation of historic and cultural resources. Section 106 of this Act mandates that Federal agencies with jurisdiction over a proposed undertaking consider the effects of that project upon any property that is included in, or eligible for inclusion in the National Register of Historic Places (NRHP).

In order to ensure that the requirements of Section 106 are met, FHWA follows procedures contained in 36 CFR 800, a set of regulations issued by the ACHP. Cultural resource investigations performed pursuant to these statutes are documented in a Historic Property Survey Report (HPSR), February 1991, copies of which are on file at Caltrans, District 3 Sacramento, 2389 Gateway Oaks, Sacramento, CA 95833.

Documentation of the Caltrans coordination with the State Historic Preservation Office can be found in Chapter 7 and Appendix D.

The cultural resource evaluation begins with the delineation of the Area of Potential Effects (APE). The APE is generally defined as the geographic area or areas within

which an undertaking may cause changes in the character or use of historic properties, if any such properties exist. The APE for this project consisted of the existing and proposed right-of-way. Field reviews and surveys of the APE, as well as archaeological record checks and examinations of historic records and archives, were conducted by qualified Department specialists. The following inventories and archives were consulted in preparing the survey reports.

- *National Register of Historic Places*, Through December 1989
- *California Historical Landmarks*, 1976
- *California Inventory of Historic Resources*, 1976
- *History of Placer County, California with Illustrations and Biographical Sketches of it's Prominent Men and Pioneers*, Thompson and West, Oakland, 1882
- *History of Placer and Nevada Counties, California*, by W.B. Lardner, and M. J. Brock, Historic Record Company, Los Angeles, 1924
- *California Place Names*, by E.G. Gudde, University of California Press, Berkeley, 1967
- *Historic Spots in California*, by M. B. Hoover, H.E. Rensch and E.G. Rensch, Stanford University Press, Stanford. 1966
- *Gold Districts of California*, by W.B. Clark, California Division of Mines and Geology, Bulletin 193, Sacramento, CA 1979
- *California Archaeological Inventory*, North Central Information Center, California State University, Sacramento
- *Grantee/Grantor Books* 1-8 Placer County Records Office, Auburn
- *Deed Books*, E, F, G, H, I, K, M, P, Q, EE, MM, QQ, 51, 54 and 168 on microfilm, Placer County Records Office, Auburn

In addition, a number of people and entities were interviewed and contacted via mail for information supporting the HPSR, including the Placer County Historical Society, the Placer County Museum, the California Native American Commission, Northern Sierra Indians, Inc., Placer Indian Association and others.

Approaches to resource identification and evaluation varied with respect to archeological (both historic and prehistoric) and historic architectural properties. Archeological properties were subject to “survey level” treatment, i.e., boundaries and features mapped, surface assemblages characterized and disturbances noted. No subsurface testing or controlled surface collections were attempted. As such, assessments of site structure, chronology, integrity etc. must be viewed as preliminary providing more

direction for further evaluation, rather than a definitive statement of significance. In contrast, the historic architectural survey results are more comprehensive, incorporating complete field and archival documentation and ultimately NRHP recommendations for each resource.

3.8.1 Prehistoric Resources

The archaeological surveys identified eleven pre-historic archaeological properties within the Area of Potential Effects (APE), two of which required further study. These two prehistoric archaeological sites requiring further study included some midden deposit, concentrations of lithic debris and flaked and ground stone tools. In addition, four archaeological properties immediately adjacent to the project area were investigated. No further study will be needed because the sites are not within the footprint of the preferred alternative.

3.8.2 Historic Period Resources

The Historic Architectural Survey Report (HASR) and the supplemental HASR (completed in 1989 and 1990) evaluated a total of eight properties, two of which were determined to be potentially eligible for listing in the NRHP: the Fickewirth Ranch and the Sheridan Cash Store (a.k.a. Country Store). Two additional properties in the vicinity of the project have been listed on the National Register since 1990; the Lincoln Public Library at 590 Fifth Street (listed 12/10/90) and the Women's Club of Lincoln at 499 E Street (listed 5/30/01). Both of these buildings are within the town of Lincoln and not affected by the project.

In the Supplemental HASR (dated August 1990), 39 properties were treated in accordance with the December 20, 1989 "Memorandum of Understanding Regarding Evaluation of Post-1945 Buildings, Moved Pre-1945 Buildings, and Altered Pre-1945 Buildings." Of the 39 properties, 21 do not predate 1957 and thus require no further study. The remaining eighteen properties predate 1957 and were evaluated in a Supplemental HASR dated September 2002. The application of "The Department's Interim Policy for the Treatment of Buildings Constructed in 1957 or Later" were documented in a statement of findings in the September 2002 Supplemental HASR that updates the August 1990 Supplemental HASR. None of these additional buildings were found to be eligible for the National Register.

Fickewirth Ranch

The property consists of a residence, tankhouse, windmill, long shed, timber-framed hay barn, one-time blacksmith shop and several small sheds. The buildings on the property have been maintained in their original form with little or no modification. It

is one of the oldest intact residences remaining in the local area. This property appears to meet the criterion for inclusion in the National Register under Criterion C-1, as an embodiment of its time, period and method of construction. All of the structures on the property, in their form and function contribute to this determination. The State Historic Preservation Officer (SHPO) concurred with this finding on October 21, 1991.

Country Store

The Sheridan Cash Store, presently called the Country Store, is a one story, six course American Bond Brick structure that sports an Italianate Commercial False Front consisting of a stepped parapet with a denticular cornice, which hides a corrugated metal gable roof. It is the sole survivor of a fire that destroyed the town in 1891. This property appears eligible for inclusion in the NRHP under Criterion A for its association with Sheridan's economic development and under Criterion C. It was designated a Point of Historical Interest by the California Historic Resources Commission on August 3, 1990.

3.9 HAZARDOUS WASTE

Environmental Assessors Inc. performed an Initial Site Assessment (ISA) in August 1994 for all the alignments being analyzed within the project area to assess the potential for encountering hazardous materials during the construction of the project. In February 1999, Caltrans performed an updated ISA and subsequent site assessments have been conducted since then. Copies of these reports are available for review at the Department of Transportation, District 3 Sacramento office, 2389 Gateway Oaks Dr., Sacramento, CA.

The majority of the parcels were determined to be free of significant hazardous waste. Some of the factors being taken into account were industrial manufacturing activities within the alignment areas, suspected asbestos containing materials, industrial wastewater generation, recorded or observed cases of hazardous waste/materials mismanagement practices on the subject property, pesticide use, and potentially PCB-containing electrical devices.

Evaluation of other factors such as neighboring land use and the presence of listed hazardous waste sites potentially within one mile of the subject area were used to identify potential hazardous waste issues. The following databases were consulted:

Table 3-28 Databases Searched

Name of Database	Types of Records	Agency
Contaminated Environmental Response Compensation and Liability Information System (CERCLIS)	Contaminated Sites under CERCLA (1980)	US EPA

Name of Database	Types of Records	Agency
National Priorities List (NPL)	Federal Superfund sites	US EPA
Liens	Filed Notices of Superfund liens	US EPA
Cortese	Hazardous Waste and Substances Site List	CAL EPA
CAL-Sites/Annual Work Plan (AWP)	Contaminated sites listed on the Annual Work Plan, cleanup sites under the Bond expenditure Plan	CAL EPA
Border Zone Properties(BZP)	Sites designated as Border Zone Properties (Deed restrictions)	CAL EPA
CAL-Sites/Abandoned Site Program Information System (ASPIS)	Actually or potentially contaminated sites under the Abandoned Site Program	CAL EPA
Hazardous Waste Information System (HWIS)	Hazardous Waste Generators, treatment Storage and Disposal Facilities	California Integrated Waste Management Board
Solid Waste Information System (SWIS)	Active and Inactive Sanitary landfills and Disposal Facilities	California Integrated Waste Management Board
Leaking Underground Storage Tanks (LTANK), Underground Tanks (UTANK)	Reported leakage of hazardous substances from underground storage tanks	California Regional Water Quality Control Board, Central Valley Region
Annual Work Plan (AWP)	All verified hazardous waste sites that are or will be targeted for abatement by the CAL EPA under the Hazardous Substance Cleanup Bond Act of 1984 and the Hazardous Substances Account.	Dept. of Toxic Substances Control
Leaking Underground Storage Tanks (LUST)	Leaking Underground Storage Tanks	California Regional Water Resources Control Board

The following agencies were contacted regarding underground and aboveground storage tanks, landfills and hazardous waste:

- Placer County Department of Public Works Special Districts Division (Martin, June 1994)
- Placer County Dept. of Public Works Division of Environmental Health (Buck, June 1994)

In addition, the following sources were reviewed in order to identify potential sites of concern:

- Voluntary Registered Heating and Agricultural Tanks Exempt from California Tank Regulations, as of September 25, 1985 and,
- Hazardous Materials Handlers, UST and Site Litigation (Open/Active/Closed/Temporarily Closed Facilities) as of June 30, 1994.
- Aerial Photographs

The following numbers of parcels were reviewed during the alternatives analysis and initially were determined to warrant further investigation.

Table 3-29 Parcels Possibly Requiring Further Investigation

Type of Site	Number of Parcels
Abandoned equipment with potential impacts	2
Listed on SPL	1
Existing UST+ Potential leaking	6
Surface staining, AST & UST, waste oil containers	3
Storage & Use of pesticides and fuel	3
Collection of discarded batteries	1
WECO Aerospace & Infinity Aviation questionable disposal practices	1
Municipal Sewer treatment plant	1

AST = Above Storage Tanks; UST = Underground Storage Tank; SPL= State Priority List, is the State equivalent of the Federal Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS list).

In addition, any building or other structure to be acquired will be evaluated for the presence of asbestos and lead-based paint. Due to the agricultural nature of the area, many of the parcels contain above ground storage tanks, which will require a Preliminary Site Investigation (PSI).

Due to the former use of waste oil potentially containing polychlorinated biphenyls (PCBs) to control dust in the railroad right of way, the railroad areas within the alignment could contain PCB affected soil as well as lead and/or diesel. These areas will require a PSI.

3.9.1 Hazardous Waste/Materials

The primary federal laws regulating hazardous waste/materials are the Resource Conservation and Recovery Act of 1976 (RCRA) and the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA). The purpose of CERCLA, often referred to as Superfund, is to clean up contaminated sites so that public health and welfare are not compromised. RCRA provides for “Cradle to Grave” regulation of hazardous waste.

In addition to the acts listed above, Executive Order 12088, Federal Compliance with Pollution Control, mandates that necessary actions be taken to prevent and control environmental pollution when federal activities or federal facilities are involved.

Hazardous waste in California is regulated primarily under the authority of the federal Resource Conservation and Recovery Act of 1976, and the California Health and Safety Code. Other California Laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup and emergency planning.

Worker health and safety and public safety are issues when dealing with hazardous materials that may affect human health and the environment. Proper disposal of hazardous material is vital if it is disturbed during project construction.

Title 8, Division 1, Chapter 4, Subchapter 4, Section 1532.1, of the California Code of Regulations requires addressing Aerially Deposited Lead (ADL). Until 1986 when

EPA banned the use of lead as an additive, gasoline and emissions from automobiles contained lead for more than 60 years. During that period of time approximately 50 % of lead (Pb) released from motor vehicles was deposited within 100 ft of the roadway. Lead concentration decreases with distance from the road and increases with traffic volume, particularly along heavily traveled highways. Although gasoline no longer contains lead, accumulations persist adjacent to existing older roadways.

3.9.2 Lead

The United States Environmental Protection Agency (EPA) recognizes that Aerially Deposited Lead (ADL) may be encountered near-surface soils within 50 feet of major highways due to lead additives in commercially available gasoline, the use of which is now banned. Accordingly, new roadways constructed following the elimination of lead gasoline should not require screening for ADL.

Samples are collected to determine the presence for ADL at projects that have a Peak Month or Average Annual Daily Traffic (AADT) volume of 10,000 vehicles or greater. To date, all projects sampled with AADT above 10,000 vehicles have contained hazardous levels of ADL.

The preferred alternative (D13 North Modified) is located in a rural area of no concern for ADL, where sampling and analysis will not be performed. However, the project connects into two segments of existing SR 65 and may require ADL sampling and analysis at those two connections.

Based on 1985 traffic volume data from Caltrans Traffic Census Department, the Peak Month Volume at the south connection of the project near Industrial Avenue is 11,600 vehicles, and the average annual daily traffic (AADT) is 10,500 vehicles (Table 3-30)

Table 3-30 Aerially Deposited Lead 1985 Traffic Volume Data

Location	Average Annual Daily Traffic (AADT)	Peak Month
PM R12.2 North of Industrial Ave.	10,500	11,600
PM 24.26 Placer County Line	8,000	8,800

Hazardous Waste Storage Sites

The preferred alternative (D13 N-Mod) requires the acquisition of several parcels that were evaluated for hazardous waste. A hazardous waste evaluation consisted of an Updated Initial Site Assessment (ISA), a record search dated January 5, 2004 and the updated report of the Initial Site Assessment performed by Professional Service Industries (PSI) dated February 26, 1999. With the exception of two parcels, no

hazardous waste storage sites or releases are known to exist within the project corridor. Access was denied to the parcels in question. Therefore, clean-up costs are estimated between \$0 and \$1 million.

3.10 VISUAL IMPACTS

Improvement of the visual quality of highways, as with many aspects of the environment, has been a matter of increasing concern in recent years. The Federal-Aid Highway Act of 1968 states that "a special effort should be made to preserve the natural beauty of the countryside." Similarly, NEPA states, "it is the continuous responsibility... to assure for all Americans safe, healthful, productive, aesthetically and culturally pleasing surroundings."

A Visual Impact Assessment (VIA) Report was completed to comply with this policy in July 1994, and is available for review at the Department of Transportation District 3, Sacramento office, 2389 Gateway Oaks Dr., Sacramento, CA. The following information was summarized from that report.

3.10.1 Definition of the Visual Assessment Study Area

Definition of the Study Area and all identification, inventory and evaluation of visual resources was accomplished by field inspection, including photography and visual surveys of the site. The Study Area's visual analysis includes that area from 0 to 4.8 km (0-3 mi) from the location of all alignments, and contains both natural elements and built environments. The majorities of these areas are undeveloped and comprise a rural visual environment. A smaller area is influenced by urban development around Lincoln and Sheridan.

3.10.2 General Description of Existing Landscape

Terrain within the Study Area is generally flat with rolling grasslands and elevations range from 26 to 61 m (85 to 200 ft). Open grasslands dominate the area. Perennial and intermittent creeks lined with riparian vegetation (including oak stands) traverse from east to west. The general region is rural with vistas of wide, open, non-native grasslands dotted with seasonal wetlands and occasional oak stands. Rural areas tend to be agricultural with individual homes and ranches, whereas Lincoln and Sheridan have developed residential and industrial areas.

3.10.3 Visual Assessment Units

To provide a focused analysis, the Study Area is divided into three distinct visual assessment units, each approximately 6.4 km (4 mi) long (see Figure 3-20). The South Lincoln visual assessment unit, from Orchard Creek to Auburn Ravine, is rural but

planned for mixed-use development (see Figure 3-21). The Lincoln visual assessment unit ranges from Auburn Ravine to Coon Creek, including the City of Lincoln and area to the west. This unit has the majority of existing and proposed development (see Figure 3-22). The third unit is the Sheridan visual assessment unit, which contains rural areas from Coon Creek to the Bear River, just north of Sheridan. Extensive development is not planned for this unit (see Figure 3-23). These three visual assessment units provide the basis for assessing impacts of each proposed alignment. To provide an overview of the existing visual landscape, and draw attention to any outstanding visual resources, these three visual units are described briefly below.

Similarities are common throughout all three visual assessment units. Due to relatively flat terrain, the scale of the project area seems huge. Wide, expansive views and the almost never-ending sky panorama makes trees, buildings, vehicles and other elements on the ground seem relatively tiny. Due to this large scale, there is a lack of variation. This continuous thread of non-dramatic visual elements occasionally appears monotonous. Non-native grassland prevails and basic visual elements, such as creeks and related trees, flatlands and rolling foothills, repeat throughout the project area, leading to a lack of drama and variety. However, in scattered locations, glimpses of the Sierra Nevada and the Sutter Buttes can be seen in the background.

South Lincoln Visual Assessment Unit

Terrain east of the Lincoln Bypass' southerly connection with existing SR 65 consists of rolling hills. Middle ground views are prevalent, such as Telegraph Hill to the east. The most dominant foothill is located adjacent to Orchard Creek, with an elevation of 119 m (390 ft). Even though it is not visible to northbound travelers, southbound travelers have outstanding views of this undeveloped, pristine foothill. Background views, including crests of the Sierra Nevada, can be seen from a few locations. Trees associated with Auburn Ravine are visible on the horizon to the north and west. Remaining terrain is generally flat with occasional depressions around Orchard Creek. Since Orchard Creek does not support a heavily tree-lined riparian habitat, views extend through it to the southern horizon line. The southern horizon line on clear days is not visually appealing. Radio towers provide stark vertical accents against horizontal grasslands. The Placer County Sanitary Landfill with its huge towering mounds of refuse will be visible to southbound travelers and detracts from the visual quality. Equally obtrusive is the Ultrapower Rocklin Biomass Power Plant. Tall machinery and towering smokestacks provide man-made dominance over the surrounding middle-ground rural agricultural areas. At night, this well-lit machinery and processing equipment provide a mass of light, accenting the horizon. This same area has many high intensity industrial

developments such as auto wreckers, junkyards, silica plants, concrete mix distributors, and transport truck storage yards that lessen the visual quality and character.

Ingram Slough, a freshwater marsh, passes through the South Lincoln visual assessment unit and contains occasional tall trees and grasses. There are two small areas of oak woodland near Auburn Ravine with less than 4 ha (10 ac) each; one is between Auburn Ravine and Moore Road, and the other parallels the southern side of Moore Road. Great valley oak riparian forest follows Auburn Ravine its entire length within this visual unit. Vernal pools are prevalent throughout non-native grasslands and agricultural land.

This visual unit also contains several home sites and a large ranch. Home sites are primarily located adjacent to Moore Road. Cattle are present throughout the area. Horse ranches and extensive rice fields are scattered throughout the southwestern side of this visual assessment unit. However, future development within the south Lincoln visual assessment unit will change the visual character dramatically. Recent developments include Three-D, Lincoln Crossing, Twelve Bridges and Sterling Pointe.

Viewer Quality

Overall quality of the existing visual setting for the South Lincoln visual assessment unit is good. Topography offers some vertical relief by contrasting rolling hills with flat areas. Vegetative and wetland features are vivid in wet months of the year. Home sites are sparse and do not disrupt the integrity of the setting. General visual effects of ranches can improve a visual environment.

Lincoln Visual Assessment Unit

This area contains the majority of existing development, including the City of Lincoln and the area west of Lincoln. Existing developments include Lincoln Airpark and Joiner Ranch specific plan areas, two rural subdivisions near Nelson Lane, and the Lincoln Municipal Airport along with its surrounding commercial industries. In addition, much of the previously non-developed area in the Lincoln visual assessment unit is slated for development or already developed.

Auburn Ravine and its great valley oak riparian forest flow from east to west. Vernal pools are visible in certain locations. The Lincoln Airpark Specific Plan Area and Lakeside Drive is visible to the left. The lumber processing plant and multiple clay pits are located just outside of Lincoln proper.

Viewer Quality

Overall quality of the Lincoln visual assessment unit is more interesting than the South Lincoln visual assessment unit due to the larger diversity of natural elements, such

as creeks and vernal pools. Expansive and unified views throughout agricultural areas provide harmony. Topography creates interest while ranches provide focal points. Occasional tree farms provide thick, colorful vertical elements, which contrast with the plainness of the surrounding agricultural uses. The long, large berms of the wastewater treatment plant are visible east of Nelson Drive. These slopes range up to fifteen feet high and block views to the east of the City of Lincoln and the riparian corridor along Markham Ravine. Industrial complexes around the Lincoln Municipal Airport are unsightly, unattractive and ill proportioned to the surrounding rural atmosphere. In addition, the clay pits near existing SR 65 disrupt the intactness and unity of this area. Clay pits are the largest visual encroachments within the Lincoln visual assessment unit.

Sheridan Visual Assessment Unit

The Sheridan visual assessment unit is approximately 8 km (5 mi) long, extending from Coon Creek on the south to the Bear River on the north. This area includes the rural community of Sheridan, which has no plans for development in the near future.

Ranches are sparsely located along rural roads. Curving, winding tributaries, vernal pools and vast acreage of pheasant clubs dominate these expansive views. The large stand of trees is visible along the Bear River.

Terrain in the Sheridan visual assessment unit is the most varied and exciting of all the visual assessment units. A few low-lying hills exist with elevation differences ranging from 8-16 m (25-50 ft). One unique, mile-wide rolling foothill with five saddles is located between Dalby and Riosa Roads. This particular area has the most complete panoramic view of the entire project area, including views of the Sutter Buttes, Sierra Nevada and the Central Valley. Great valley riparian oak forest provides visual corridors for Coon Creek on the south and the Bear River on the north. The majority of land in the Sheridan visual assessment unit is agricultural, especially on the east side of Dowd Road. To the west of Dowd Road is non-native grassland.

Viewer Quality

The Sheridan visual assessment unit has the best visual setting due to its mixture and variety of appealing components. The overall rural feeling of quaint ranches, large spreads of expansive land, creek corridors, elevation changes and panoramic views help define the excellence of this visual experience. Due to the lack of existing and future planned development, this area may remain free of encroaching development. Panoramic views from the top of the unique mile-wide foothill between Dalby and Riosa Roads exhibit the compositional harmony and visual coherence of the Sheridan visual assessment unit.

Figure 3-20 Visual Assessment Units

Figure 3-21 South Lincoln Visual Assessment Unit



Figure 3-22 Lincoln Visual Assessment Unit



Figure 3-23 Sheridan Visual Assessment Unit

